FOURTEENTH ANNUAL REPORT

—OF THE—

ILLINOIS

State Bee-Keepers' Association

Organized February 26, 1891, at
Springfield, Illinois

COMPILED BY
JAMES A. STONE, SECRETARY,
R. R. 4, Springfield, Ill.

SPRINGFIELD, ILL:
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1915

ILLINOIS STATE CAPITOL BUILLING AT SPRINGFIELD.
BEE-KEEPERS' MEETING PLACE.

Letter of Transmittal

OFFICE OF THE SECRETARY,
R. R. 4, SPRINGFIELD, ILL., March 1, 1915.

To His Excellency Edward F. Dunne, Governor of the State of Illinois:

SIR: I have the honor to transmit herewith the Fourteenth Annual Report of the Illinois State Bee-Keepers' Association.

Respectfully submitted,

JAMES A. STONE, *Secretary.*

FATHER LANGSTROTH,
Inventor of the Movable Frame Hive.

OFFICERS

— OF THE—

Illinois State Bee-Keepers' Association

FOR 1915

EMIL J. BAXTER, - - - - - - - - - President

Nauvoo, Ill.

A. L. KILDOW, - - - - - - - - - - Putnam

State Foul Brood Inspector.

Vice-Presidents.

1st—W. B. MOORE, - - - - - - - - - Altona

2d—AARON COPPIN, - - - - - - - - - Wenona

3d—DR. A. C. BAXTER, - - - - - - - - Springfield

4th—HENRY C. DADANT, - - - - - - - - Hamilton

5th—J. W. BOWEN, - - - - - - - - Jacksonville

JAMES A. STONE, - - - - - - - - - Secretary

CHAS. BECKER, - - - - - - - - - Treasurer

Pleasant Plains.

List of members will appear in back of Report. Also Statistical Report.

Formation of the Illinois State Bee-Keepers' Assocaition.

Springfield, Ill., Feb. 26, 1891.

The Capitol Bee-Keepers' Association was called to order by President P. J. England.

Previous notice having been given that an effort would be made to form a State Association, and there being present bee-keepers from different parts of the State, by motion, a recess was taken in order to form such an Association.

P. J. England was chosen temporary chairman and C. E. Yocum temporary secretary. On motion, the Chair appointed Thos. G. Newman, C. P. Dadant and Hon. J. M. Hambaugh a committee on constitution.

Col. Chas. F. Mills addressed the meeting on the needs of a State Association, and stated that it was his opinion that the bee-keepers should have a liberal appropriation for a State Apiarian Exhibit at the World's Columbian Exposition.

A motion to adjourn till 1:30 p. m. prevailed.

AFTERNOON SESSION.

The Committee on Constitution reported a form for same, which, on motion, was read by the Secretary, by sections serially.

Geo. F. Robbins moved to substitute the word "shall" for "may" in the last clause of Section 1, Article III. This led to a very animated discussion, and the motion was lost.

J. A. Stone moved to amend the above-named section by striking out the word "ladies" and all that followed of the same section, which motion led to further discussion, and motion finally prevailed.

Section 2, Article II., relating to a quorum, was, on motion, entirely stricken out.

Mr. Robbins moved to amend Article V. by adding the words "Thirty days' notice having been given to each member." Prevailed.

Thos. G. Newman moved to adopt the Constitution, so amended, as a whole. Which motion prevailed.

See Constitution.

J. A. Stone moved that the Chair appoint a nominating committee of three on permanent organization. Prevailed.

Chair appointed as such committee, Col. Chas. F. Mills, Hon. J. M. Hambaugh, and C. P. Dadant.

Committee retired and in a few minutes returned, submitting the following named persons as candidates for their respective offices:

For President—P. J. England, Fancy Prairie.

For Vice Presidents—Mrs. L. Harrison, Peoria; C. P. Dadant, Hamilton; W. T. F. Petty, Pittsfield; Hon. J. M. Hambaugh, Spring; Dr. C. C. Miller, Marengo.

Secretary—Jas. A. Stone, Bradfordton.

Treasurer—A. N. Draper, Upper Alton.

Mr. Black moved the adoption of the report of the committee on nominations. The motion prevailed, and the officers as named by the committee were declared elected for the ensuing year.

Hon. J. M. Hambaugh moved that Mr. Thos. G. Newman, editor American Bee Journal, of Chicago, be made the first honorary member of the Association. Prevailed.

At this point Col. Chas. F. Mills said: "Mr. Chairman, I want to be the first one to pay my dollar for membership," at the same time suiting his action to his words, and others followed his example, as follows:

CHARTER MEMBERS.

Col. Chas. F. Mills, Springfield.
Hon. J. M. Hambaugh, Spring.
Hon. J. S. Lyman, Farmingdale.
C. P. Dadant, Hamilton.
Chas. Dadant, Hamilton.
A. N. Draper, Upper Alton.
S. N. Black, Clayton.
Aaron Coppin, Wenona.
Geo. F. Robbins, Mechanicsburg.
J. W. Yocum, Williamsville.
Thos. S. Wallace, Clayton.
A. J. England, Fancy Prairie.
P. J. England, Fancy Prairie.
C. E. Yocom, Sherman.
Jas. A. Stone, Bradfordton.

FIRST HONORARY MEMBER.

Thos. G. Newman, editor American Bee Journal, Chicago.

State of Illinois—Department of State

ISAAC N. PEARSON, Secretary of State.

To all to whom these Presents shall come—GREETING:

Whereas, A certificate duly signed and acknowledged having been filed in the office of the Secretary of State on the 27th day of February, A. D. 1891, for the organization of the Illinois State Bee-keepers' Association, under and in accordance with the provisions of "An Act Concerning Corporations," approved April 18, 1872, and in force July 1, 1872, and all acts amendatory thereof, a copy of which certificate is hereunto attached.

Now, Therefore, I, Isaac N. Pearson, Secretary of State, of the State of Illinois, by virtue of the powers and duties vested in me by law, do hereby certify that the said, The Illinois State Bee-Keepers' Association, is a legally organized corporation under the laws of the State.

In Testimony Whereof, I hereunto set my hand and cause to be affixed the great seal of State.

Done at the City of Springfield, this 27th day of February, in the [Seal] year of our Lord one thousand eight hundred and ninety one, and the Independence of the United States the one hundred and fifteenth.

I. N. PEARSON,
Secretary of State.

STATE OF ILLINOIS, } ss.
County of Sangamon. }

To Isaac N. Pearson, Secretary of State:

We, the undersigned, Perry J. England, Jas. A. Stone and Albert N. Draper, citizens of the United States, propose to form a corporation under an act of the General Assembly of the State of Illinois, entitled "An Act Concerning Corporations," approved April 18, 1872, and all acts amendatory thereof; and for the purposes of such organizations, we hereby state as follows, to-wit:

1. The name of such corporation is, The Illinois State Bee-Keepers' Association.

2. The object for which it is formed is, to promote the general interests of the pursuit of bee-culture.

3. The management of the aforesaid Association shall be vested in a board of three Directors, who are to be elected annually.

4. The following persons are hereby selected as the Directors, to control and manage said corporation for the first year of its corporate existence, viz.: Perry J. England, Jas. A. Stone, and Albert N. Draper.

5. The location is in Springfield, in the County of Sangamon, State of Illinois. (Signed.)

Perry J. England,
Jas. A. Stone,
Albert N. Draper.

STATE OF ILLINOIS, } ss.
Sangamon County. }

I, S. Mendenhall, a notary public in and for the County and State aforesaid, do hereby certify that on this 26th day of February, A. D. 1891, personally appeared before me, Perry J. England, James A. Stone and Albert N. Draper, to me personally known to be the same persons who executed the foregoing certificate, and severally acknowledged that they had executed the same for the purposes therein set forth.

In witness whereof, I have hereunto set my hand and seal the day and year above written.

S. Mendenhall,
[Seal] Notary Public.

CONSTITUTION AND BY-LAWS

—OF THE—

Illinois State Bee-Keepers' Association

CONSTITUTION

Adopted Feb. 26, 1891.

ARTICLE I.—Name.

This organization shall be known as The Illinois State Bee-Keepers' Association, and its principal place of business shall be at Springfield, Ill.

ARTICLE II.—Object.

Its object shall be to promote the general interests of the pursuit of bee-culture.

ARTICLE III.—Membership.

Section 1. Any person interested in Apiculture may become a member upon the payment to the Secretary of an annual fee of one dollar ($1.00). (Amendment adopted at annual meeting, November, 1905): And any affiliating Association, as a body, may become members on the payment of an aggregate fee of fifty cents (50c) per member, as amended Nov., 1910.

Sec. 2. Any persons may become honorary members by receiving a majority vote at any regular meeting.

ARTICLE IV.—Officers.

Section 1. The officers of this Association shall be, President, Vice-President, Secretary and Treasurer. Their terms of office shall be for one year, or until their successors are elected and qualified.

Sec. 2. The President, Secretary and Treasurer shall constitute the Executive Committee.

Sec. 3. Vacancies in office — by death, resignation and otherwise— shall be filled by the Executive Committee until the next annual meeting.

ARTICLE V.—Amendments.

This Constitution shall be amended at any annual meeting by a two-thirds vote of all the members present— thirty days' notice having been given to each member of the Association.

BY-LAWS

ARTICLE I.

The officers of the Association shall be elected by ballot and by a majority vote.

ARTICLE II.

It shall be the duty of the President to call and preserve order at all meetings of this Association; to call for all reports of officers and committees; to put to vote all motions regularly seconded; to count the vote at all elections, and declare the results; to decide upon all questions of order, and to deliver an address at each annual meeting.

ARTICLE III.

The Vice-Presidents shall be numbered, respectively, First, Second, Third, Fourth and Fifth, and it shall be

the duty of one of them, in his respective order, to preside in the absence of the President.

ARTICLE IV.

Section 1. It shall be the duty of the Secretary to report all proceedings of the Association, and to record the same, when approved, in the Secretary's book; to conduct all correspondence of the Association, and to file and preserve all papers belonging to the same; to receive the annual dues and pay them over to the Treasurer, taking his receipt for the same; to take and record the name and address of every member of the Association; to cause the Constitution and By-Laws to be printed in appropriate form, and in such quantities as may be directed by the Executive Committee from time to time, and see that each member is provided with a copy thereof; to make out and publish annually, as far as practicable, statistical table showing the number of colonies owned in the spring and fall, and the amount of honey and wax produced by each member, together with such other information as may be deemed important, or be directed by the Executive Committee; and to give notice of all meetings of the Association in the leading papers of the State, and in the bee journals at least four weeks prior to the time of such meeting.

Sec. 2. The Secretary shall be allowed a reasonable compensation for his services, and to appoint an assistant Secretary if deemed necessary.

ARTICLE V.

It shall be the duty of the Treasurer to take charge of all funds of the Association, and to pay them out upon the order of the Executive Committee, taking a receipt for the same; and to render a report of all receipts and expenditures at each annual meeting.

ARTICLE VI.

It shall be the duty of the Executive Committee to select subjects for discussion and appoint members to deliver addresses or read essays, and to transact all interim business.

ARTICLE VII.

The meeting of the Association shall be, as far as practicable, governed by the following order of business:

Call to order.
Reading minutes of last meeting.
President's address.
Secretary's report.
Treasurer's report.
Reports of committees.
Unfinished business.
Reception of members and collection.
Miscellaneous business.
Election and installation of officers.
Discussion.
Adjournment.

ARTICLE VIII.

These By-Laws may be amended by a two-thirds vote of all the members present at any annual meeting.

C. E. Yocom,
Aaron Coppin,
Geo. F. Robbins

Following is a copy of the law passed by the Illinois Legislature May 19th, and signed by the Governor June 7th, 1911, to take effect July 1st, 1911:

State Foul Brood Law

State Inspector of Apiaries.

HOUSE BILL No. 670.

(Approved June 7, 1911.)

An Act to prevent the introduction and spread in Illinois of foul brood among bees, providing for the appointment of a State Inspector of Apiaries and prescribing his powers and duties.

Whereas, the disease known as foul brood exists to a very considerable extent in various portions of this State, which, if left to itself, will soon exterminate the honey-bees; and

Whereas, the work done by an individual bee-keepeer or by a State inspector is useless so long as the official is not given authority to inspect and, if need be, to destroy the disease when found; and

Whereas, there is a great loss to the bee-keepers and fruit growers of the State each year by the devastating ravages of foul brood;

Section 1. **Be it enacted by the People of the State of Illinois, represented in the General Assembly:** That the Governor shall appoint a State inspector of Apiaries, who shall hold his office for the term of two years, and until his successor is appointed and qualified, and who may appoint one or more assistants, as needed, to carry on the inspection under his supervision. The Inspector of Apiaries shall receive for each day actually and necessarily spent in the performance of his duties the sum of Four Dollars to be paid upon bills of particulars certified to as correct by the said State Inspector of Apiaries, and approved by the Governor.

Sec. 2. It shall be the duty of every person maintaining or keeping any colony or colonies of bees to keep the same free from the disease known as foul brood and from every contagious and infectious disease among bees. All bee-hives, bee-fixtures or appurtenances where foul brood or other contagious or infectious diseases among bees exists, are hereby declared to be nuisances to be abated as hereinafter prescribed. If the inspector of apiaries shall have reason to believe that any apiary is infected by foul brood or other contagious disease, he shall have power to inspect, or cause to be inspected, from time to time, such apiary, and for the purpose of such inspection he, or his assistants, are authorized during reasonable business hours to enter into or upon any farm or premises, or other building or place used for the purpose of propagating or nurturing bees. If said inspector of apiaries, or his assistants, shall find by inspection that any person, firm or corporation is maintaining a nuisance as described in this section, he shall notify in writing the owner or occupant of the premises containing the nuisance so disclosed of the fact that such nuisance exists. He shall include in such notice a statement of the conditions constituting such nuisance, and order that

the same be abated within a specified time and a direction, written or printed, pointing out the methods which shall be taken to abate the same. Such notice and order may be served personally or by depositing the same in the post office properly stamped, addressed to the owner or occupant of the land or premises upon which such nuisance exists, and the direction for treatment may consist of a printed circular, bulletin or report of the Inspector of Apiaries, or an extract from same.

If the person so notified shall refuse or fail to abate said nuisance in the manner and in the time prescribed in said notice, the Inspector of Apiaries may cause such nuisance to be abated, and he shall certify to the owner or person in charge of the premises the cost of the abatement and if not paid to him within sixty days thereafter the same may be recovered, together with the costs of action, before any court in the State having competent jurisdiction.

In case notice and order served as aforesaid shall direct that any bees, hives, bee-fixtures or appurtenances shall be destroyed and the owner of such bees, hives, bee-fixtures or appurtenances shall consider himself aggrieved by said order, he shall have the privilege of appealing within three days of the receipt of the notice to the county court of the county in which such property is situated. The appeal shall be made in like manner as appeals are taken to the county court from judgments of justices of the peace. Written notice of said appeal served by mail upon the Inspector of Apiaries shall operate to stay all proceedings until the decision of the county court, which may, after investigating the matter, reverse, modify or affirm the order of the Inspector of Apiaries. Such decision shall then become the order of the Inspector of Apiaries, who shall serve the same as hereinbefore set forth and shall fix a time within which such decision must be carried out.

Sec. 3. The Inspector of Apiaries shall, on or before the second Monday in December of each calendar year, make a report to the Governor and also to the Illinois State Bee Keepers' Association, stating the number of apiaries visited, the number of those diseased and treated, the number of colonies of bees destroyed and the expense incurred in the performance of his duties.

Sec. 4. Any owner of a diseased apiary or appliances taken therefrom, who shall sell, barter or give away any such apiary, appliance, queens or bees from such apiary, expose other bees to the danger of contracting such disease, or refuse to allow the Inspector of Apiaries to inspect such apiary, or appliances, shall be fined not less than $50.00 nor more than $100.00.

Approved June 7, 1911.

(Bill passed in the 48th General Assembly.)

Bee-Keepers' Association.

§ 1. Appropriates $1,000 per annum—proviso.
§ 2. How drawn.
§ 3. Annual Repoort.

An Act making an appropriation for the Illinois State Bee-Keepers' Association.

Whereas, The members of the Illinois State Bee-Keepers' Association have for years given much time and labor without compensation in the endeavor to promote the interests of the bee-keepers of the State; and,

Whereas, The importance of the industry to the farmers and fruit-growers of the State warrants the expenditure of a reasonable sum for the holding of annual meetings, the publication of reports and papers containing practical information concerning bee-keeping, therefore, to sustain the same and enable this organization to defray the expenses of annual meetings, publishing reports, suppressing foul brood among bees in the State, and promote the industry in Illinois;

Section 1. Be it enacted by the People of the State of Illinois represented in the General Assembly: That there be and is hereby appropriated for the use of the Illinois State Bee-Keepers' Association the sum of one thousand dollars ($1,000) per annum for the years 1913 and 1914. For the purpose of advancing the growth and developing the interests of the bee-keepers of Illinois, said sum to be expended under the direction of the Illinois State Bee-Keepers' Association for the purpose of paying the expenses of holding annual meetings, publishing the proceedings of said metings, suppressing foul brood among bees in Illinois, etc.

Provided, however, That no officer or officers of the Illinois State Bee-Keepers' Association shall be entitled to receive any money compensation whatever for any services rendered for the same, out of this fund.

Sec. 2. That on the order of the President, countersigned by the Secretary of the Illinois State Bee-Keepers' Association, and approved by the Governor, the Auditor of Public Accounts shall draw his warrant on the Treasurer of the State of Illinois in favor of the treasurer of the Illinois State Bee-Keepers' Association for the sum herein appropriated.

Sec. 3. It shall be the duty of the treasurer of the Illinois State Bee-Keepers' Association to pay out of said appropriation, on itemized and receipted vouchers, such sums as may be authorized by vote of said organization on the order of the president, countersigned by the secretary, and make annual report to the Governor of all such expenditures, as provided by law.

Code of Rules and Standards for Grading Apiarian Exhibits at Fair as Adopted by Illinois State Bee-Keepers' Association.

COMB HONEY.

Rule 1. Comb honey shall be marked on a scale of 100, as follows:

Quantity	40
Quality	40
Style of display	20

Rule 2. Points of quality should be:

Variety	5
Clearness of capping	10
Completeness of capping	5
Completeness of filling	5
Straightness of comb	5
Uniformity	5
Style of section	5

Remarks: 1. By variety is meant different kinds, with regard to the sources from which the honey is gathered, which adds much interest to an exhibit.

2. By clearness of capping is meant freedom from travel stain and a water soaked appearance. This point is marked a little high, because it is a most important one. There is no better test of the quality of comb honey than the appearance of the cappings. If honey is taken off at the proper time, and cared for as it should be. so as to preserve its original clear color, body and flavor will take care of themselves, for excellence in the last two points always accompanies excellence in the first. Clover and basswood honey shoud be white; heartsease, a dull white tinged with yellow; and Spanish needle, a bright yellow.

3. By uniformity is meant closeness of resemblance in the sections composing the exhibit.

4. By style is meant neatness of the sections, freedom from propolis, etc.

5. Honey so arranged as to show every section should score the highest in style of display, and everything that may add to the tastiness and attractivness of an exhibit should be considered.

EXTRACTED HONEY.

Rule 1. Extracted honey should be marked on a scale of 100, as follows:

Quantity	40
Quality	45
Style of display	15

Rule 2. The points of quality should be:

Variety	10
Clearness of color	5
Body	5
Flavor	5
Style of package	10
Variety of package	5
Finish	5

Remarks: 1. Light clover honey pouring out of a vessel is a very light straw color; Spanish needle, a golden hue, and dark clover honey, a dull amber.

2. Style of package is rated a little high, not only because in that consists the principal beauty of an exhibit of extracted honey, but also because it involves the best package for marketing. We want to show honey in the best shape for the retail trade, and that, in this case, means the most attractive style for exhibition. Glass packages should be given the preference over tin; flint glass over green, and smaller vessels over larger, provided the latter run over one or two pounds.

3. By variety of package is meant chiefly different sizes; but small pails for retailing, and, in addition, cans or kegs (not too large) for wholesaling, may be considered. In the former case, pails painted in assorted colors, and lettered "Pure Honey," should be given the preference.

4. By finish is meant capping, labeling, etc.

5. Less depends upon the manner of arranging an exhibit of extracted than of comb honey, and for that reason, as well as to give a higher number of points to style of package, a smaller scale is allowed for style of display.

SAMPLES OF COMB AND EXTRACTED HONEY.

Rule 1. Single cases of comb honey, entered as such for separate premiums, should be judged by substantially the same rules as those given for a display of comb honey, and samples of extracted, by those governing displays of extracted honey.

Rule 2. Samples of comb or extracted honey, as above, may be considered as part of the general display in their respective departments.

GRANULATED HONEY.

Rule 1. Candied or granulated honey should be judged by the rules for extracted honey, except as below.

Rule 2. The points of quality should be:

Variety	10
Fineness of grain	5
Color	5
Flavor	5
Style of package	10
Variety of package	5
Finish	5

Rule 3. An exhibit of granulated honey may be entered or considered as part of a display of extracted honey.

NUCLEI OF BEES.

Rule. Bees in observation hives should be maked on a scale of 100, as follows:

Color and markings	30
Size of bees	30
Brood	10
Queen	10
Quietness	5
Style of comb	5
Style of hive	10

Remarks: 1. Bees should be exhibited only in the form of single frame nuclei, in hives or cages with glass sides.

2. Italian bees should show three or more bands, ranging from leather color to golden or light yellow.

3. The markings of other races should be those claimed for those races in their purity.

4. A nucleus from which the queen is omitted should score zero on that point.

5. The largest quantity of brood in all stages or nearest to that should score the highest in that respect.

6. The straightest, smoothest and most complete comb, with the most honey consistent with the most brood, should score the highest in that respect.

7. That hive which is neatest and best made and shows the bees, etc., to the best advantage should score the highest.

QUEEN BEES.

Rule. Queen bees in cages should be marked on a scale of 100, as follows:

Quantity	40
Quality and variety	40
Style of caging and display	20

Remarks: 1. The best in quality consistent with variety should score the highest. A preponderence of Italian queens should overweigh a preponderance of black ones, or, perhaps, of any other race or strain; but sample queens of any or all varieties should be duly considered. Under the head of quality should also be considered the attendant bees. There should be about a dozen with each queen.

2. Neatness and finish of cages should receive due consideration, but the principal points in style are to make and arrange the cages so as to show the inmates to the best advantage.

BEESWAX.

Rule. Beeswax should be marked on a scale of 100, as follows:

Quantity	40
Quality	40
Style of display	20

Remarks: 1. Pale, clear, yellow specimens should score the highest, and the darker grades should come next in order.

2. By style is meant chiefly the forms in which the wax is molded and put up for exhibition. Thin cakes or small pieces are more desirable in the retail trade than larger ones. Some attention may be given to novelty and variety.

Foul Brood and Other Diseases of Bees.

Foul brood—bacillus alvei—is a fatal and contagious disease among bees, dreaded most of all by bee-keepers. The germs of disease are either given to the young larval bee in its food when it hatches from the egg of the queen-bee, or it may be contagion from a diseased colony, or if the queen deposits eggs, or the worker-bees store honey or pollen in such combs. If in any one of the above cases, the disease will soon appear, and the germs increase with great rapidity, going from one little cell to another, colony to colony of bees, and then to all the neighboring apiaries, thus soon leaving whole apiaries with only diseased combs to inoculate others. The Island of Syria in three years lost all of its great apiaries from foul brood. Dzierzon, in 1868, lost his entire apiary of 500 colonies. Cowan, the editor of the British Bee Journal, recently wrote: "The only visible hindrance to the rapid expansion of the bee industry is the prevalence of foul brood, which is so rapidly spreading over the country as to make bee-keeping a hazardous occupation."

Canada's foul brood inspector, in 1890 to 1892, reported 2,395 cases, and in a later report for 1893 to 1898, that 40 per cent of the colonies inspected were diseased. Cuba is one of the greatest honey-producing countries, and was lately reported to me by a Wisconsin bee-keeper who has been there, and will soon return to Wisconsin: "So plentiful is foul brood in Cuba that I have known whole apiaries to dwindle out of existence from its ravages, and hundreds more are on the same road to sure and certain death. I, myself, took, in 90 days in Cuba, 24,000 pounds of fine honey from 100 colonies, but where is that apiary and my other 150-colony apiary? Dead from foul brood." Cuba, in 1901, exported 4,795,600 pounds of honey, and 1,022,897 pounds of beeswax.

Cuba at present has laws to suppress foul brood, and her inspector is doing all possible to stamp the same from the island.

Even in Wisconsin I know of several quite large piles of empty hives, where also many other apiaries where said disease had gotten a strong foothold.

By the kindness of the Wisconsin bee-keepers, and, in most cases, by their willing assistance, I have, during the last five years, gotten several counties free of the disease, and at the present writing, March 12, 1902, have what there is in Wisconsin under control and quarantined. This dreadful disease is often imported into our State from other States and countries, so we may expect some new cases to develop until all the States shall enact such laws as will prevent further spread of the same. Arizona, New York (1899), California (1891), Nebraska (1895), Utah (1892), Colorado (1897), have county inspectors, and Wisconsin (1897), and Michigan (1901), have State inspectors. The present Wisconsin law, after five years of testing and rapid decrease of the disease, is considered the best, and many other States are now making efforts to secure a like law.

There are several experimental apiaries in Canada, under control of the Ontario Agricultural College; also a few in the United States, especially in Colorado, that have done great work for the bee-keeping industry, and their various published bulletins on the same are very valuable. The Wisconsin State Bee-Keepers' Association has asked that an experimental apiary might be had on the Wisconsin Experimental Farm, but at present there are so many departments asking for aid that I fear it may be some time before bee-culture will be taken up.

Causes of Foul Brood.

1. Many writers claim foul brood originates from chilled or dead brood. Dr. Howard, of Texas, one of the best

practical modern scientific experimenters, a man of authority, has proven beyond a doubt that chilled or common dead brood does not produce foul brood. I have, in the last five years, also proven his statement to be true in Wisconsin, but I do believe such conditions of dead brood are the most favorable places for lodgment and rapid growth of disease. Also, I do not believe foul brood germs are floating in the air, for, if they were, why would not every brood-comb cell of an infected hive become diseased? I believe that this disease spreads only as the adult bees come in contact with it, which is often through robber-bees. Brood-combs should not be removed from any colony on cold or windy days, nor should they be left for a moment in the direct rays of sunshine on hot days.

2. The foul brood may be caused by the need of proper food and temperature. Generally this disease does not appear to be serious during a honey-flow, but at the close of the honey season, or at time of scarcity, it is quite serious, and as the bees at such times will rob anywhere they can find stores, whether from healthy or diseased combs, it is the duty of every bee-keeper to keep everything carefully protected. Hive-entrances contracted, no old combs or any article with a drop of honey in where the bees can get to it. While honey is coming in from the various flowers, quite a portion is used direct as food for the larval bee, and with such no disease would be fed to the bees. Such fed bees, even in a diseased hive, will hatch, as is often the case. I never knew a case where a bee hatched from a brood cell that had ever had foul brood in. If the germs of disease are there in the dried scale attached to the lower side walls, bees will store honey therein; the queen will deposit eggs, or the cell may be filled with pollen, or beebread, as some call it. Said honey, or pollen, when it comes in contact with those germs of disease, or the food given to the young bee, if in the proper temperature, said germs of disease will grow and develop rapidly.

Causes of Contagion.

I fully believe that if the history of foul brood in Wisconsin were known, nearly every case could be traced to contagion from diseased combs, honey, or from home diseased queen-breeders' cages. There are some instances where I have traced the history of contagion in Wisconsin:

1. Diseased apiaries, also single colonies, sold either at auction or private sale. Several law suits have resulted in the settlement of some of the cases.

2. Brood-combs and various implements from diseased hives, used by other bee-keepers, and borrowed articles.

3. All the bees in an apiary dead from foul brood, and the hives having an abundance of honey in the brood-combs, said combs placed out by the side of hives, so that neighbor's bees might get the honey. From those combs I lined robber bees to seven other apiaries, and each time became diseased and were treated.

4. Robber bees working on empty honey packages in the back yards of grocery stores and baking factories. Said honey came from diseased apiaries, some located in far distant states, even Cuba.

5. Loaning of hives, combs, extractors, and even empty honey-packages.

6. Buying honey from strangers, or not knowing where it was produced, and feeding it to bees without boiling the honey.

7. Too common a practice of using old brood-combs from some apiary where the owner's bees have died from "bad luck," as he calls it.

8. Queen-bee—by buying queen bees from strangers and introducing them in the cages they came in. I have traced several new outbreaks of the disease to the hives where such queens were introduced, and the queens came from distant states. To be safe, on arrival of queen, put her carefully alone in a new and clean cage with good food in it. Keep her in there, warm and comfortable, for a few hours before introducing. The shipping cage and every bee that came with the queen should be put in the stove and burned. I do not think there is any danger from the queen so treated, even from diseased hives, but I do know of many cases where disease soon appear in the hives, where the shipping cage and bees were put in with the colony. The great danger is in the food in said cage being made from diseased honey. I was called to attend a State bee-keepers' meeting in another State, and I asked if any there had had experience with foul

brood. There was a goodly number of raised hands. Then I asked: "Do any of you think you got the disease by buying queen-bees?" Again several hands were raised. Even bee-keepers there had traced the disease in their apiaries to the buying of queens, and all from the same breeder. If you get queens from abroad, I hope you will do with them as I have described above. Better be on the safe side.

Experiments.

1. A prominent Wisconsin bee-keeper some years ago had foul brood among his bees so bad that he lost 200 colonies before the disease was checked. Having a honey-extractor and comb-foundation machine, he first boiled the hives in a large sorghum pan, then in a kettle all combs were melted after the honey was extracted; the honye was boiled and also the extractor and implements used. The bees were returned to their hives on comb-foundation he made from the wax made from the melted combs, then fed the boiled honey. Several years have passed, and there has been no sign of disease in his apiary since.

2. Foul-brood germs are not always killed when exposed to a temperature of 212 deg. F. (boiling point) for 45 minutes. uBt in every case where the combs are boiled in boiling water, and same were well stirred while boiling, no germs were alive.

3. Foul brood in brood-combs is not destroyed when exposed to the temperature of Wisconsin winters of 20 deg. below zero, and in one case I developed foul brood from combs that had been exposed to 28 deg. below zero.

4. Honey, if stored in diseased combs, acts as a preserving medium, and in such cases the germs of disease will remain so long as the comb is undisturbed. Four years at least.

5. Honey or beeswax, or the refuse from a solar or sunheat extractor, is not heated enough to kill foul-brood germs. Several cases of contagion where robber bees worked on solar extractor refuse or honey.

6. Comb-foundation made by supply manufacturers is free from live germs of disease and perfectly safe to use. To prove this experiment beyond a doubt, I took a quantity of badly diseased brood-combs from several apiaries and render each batch of combs into wax myself on the farm where found. Then on my own foundation mill I made some brood-foundation. I also took quite a quantity more of said wax, went to two wholesale comb-foundation manufacturers, and both parties willingly made my experimental wax into comb-foundation, just the same as they do every batch of wax, I then divided the various makes of foundation, and selected 20 of the best bee-yards in Wisconsin, where no disease has ever been known; had the same placed in 62 of their best colonies, and in every case no signs of disease have appeared. Those same colonies tontinue to be the best in the various apiaries.

Symptoms of Foul Brood.

1. The infected colony is not liable to be as industrious. Hive entrance with few guard bees to protect their home. Sometimes fine dirt or little bits of old comb and dead bees in and around the hive-entrance, and often robber bees seeking entrance.

2. Upon opening the hive, the brood in the combs is irregular, badly scattered, with many empty cells which need inspection.

3. The cappings over healthy brood are oval, smooth, and of a healthy color peculiar to honey-bee brood, but if diseased, the cappings are sunken, a little darker in color, and have ragged pin holes. The dead larval bee is o fa light color, and, as it is termed, ropy, so that if a toothpick is inserted and slowly withdrawn, this dead larva will draw out much like spittle or glue.

4. In this ropy stage there is more or less odor peculiar to the disease; it smells something like an old, stale gluepot. A colony may be quite badly affected and not omit much odor, only upon opening of the hive or close examination of the brood. I have treated a few cases where the foul brood odor was plainly noticed several rods from the apiary.

5. Dried Scales.—If the disease has reached the advanced stages, all the above described conditions will be easily seen and the dried scales as well. This foul matter is so tenacious that the bees cannot remove it, so it dries down on the lower side-wall of the cell, midway from the bottom to front end of the cell, seldom on the bottom of the cell. According to its stage of development, there will be either the shapeless mass of dark brown matter,

on the lower side of the cell, often with a wrinkled skin covering, as if a fine thread had been inserted in the skin legthwise and drawn enough to form rib-like streaks on either side. Later on it becomes hardened, nearly black in color, and in time dries down to be as thin as the side walls of the cell. Often there will be a small dried bunch at the front end of the cell, not larger than a part of a common pin head. To see it plainly, take the comb by the top bar and hold it so that a good light falls into the cell at an angle of 75 degrees from the tip of the comb, while your sight falls upon the cell at an angle of about 45 degrees. The scales, if present, will easily be seen as above described. This stage of disease in combs is easily seen, and is always a sure guide or proof of foul brood. Such combs can never be used safely by the bees, and must be either burned or carefully melted. Be sure not to mistake such marked combs in the spring for those soiled with bee dysentery. The latter have a somewhat similar appearance, but are more or less surface soiled, and will also be spotted or have streaked appearance by the dark brown sticky excrements from the adult bees.

Treatment.

"A bee-keeper who does not discover foul brood, before his nostrils remind him that there is something wrong with his bees, is not the proper person to treat the case." Dr. Howard, in his valuable book on foul brood, states: "I regard the use of all drugs in the treatment of foul brood as a useless waste of time and material, wholly ineffectual, inviting ruin and total loss of bees. Any method which has not for its object the entire removal of all infectious material beyond the reach of both bees and brood, will prove detrimental and destructive, and surely encourage the recurrence of the disease." In Wisconsin, I have tried many methods of treatment, and cured some cases with each method; but the one that never fails, if carefully followed, and that commends itself, is the McEvory treatment. Canada's foul brood inspector has cured foul brood by the wholesale—thousands of cases.

McEvoy Treatment.

"In the honey season, when the bees are gathering honey freely, remove the combs in the evening and shake the bees into their own hives; give them frames with comb-foundation starters, and let them build comb for four days. The bees will make the starters into comb during the four days, and store the diseased honey in them, which they took with them from the old comb. Then, in the evening of the fourth day, take out the new combs and give them comb-foundation (full sheets) to work out, and then the cure will be complete. By this method of treatment all the diseased honey is removed from the bees before the full sheets of foundation are worked out. All the old foul-brood combs must be burned or carefully made into wax, after they are removed from the hives, and all the new combs made out of the starters during the four days must be burned or made into wax, on account of the diseased honey that would be stored in them. All the curing or treating of diseased colonies should be done in the evening, so as not to have any robbing done, or cause any of the bees from the diseased colonies to mix and go with the bees of healthy colonies. By doing all the work in the evening, it gives the bees a chance to settle down nicely before morning, and then there is no confusion or trouble. This same method of curing colonies of foul brood can be carried on at any time from May to October, when the bees are not getting any honey, by feeding plenty of sugar syrup in the evenings to take the place of the honey flow. It will start the bees robbing and spread the disease, to work with foul brood colonies in warm days when the bees are not gathering honey, and for that reason all work must be done in the evenings when no bees are flying.

"When the diseased colonies are weak in bees, put the bees, two, three, or four colonies together, so as to get a good sized colony to start the cure with, as it does not pay to spend time fussing with little, weak colonies. When the bees are not gathering honey, any apiary can be cured of foul brood by removing the diseased combs in the evening and giving the bees frames with comb-foundation starters on. Then, also, in the vening feed the bees plenty of sugar syrup, and they will draw out the foundation and sore the diseased honey which they took with them from the old combs; on the fourth evening remove the new

combs made out of the starters, and give the bees full sheets of comb-foundation, and feed plenty of sugar syrup each evening, until every colony is in first class order. Make the syrup out of granulated sugar, putting one pound of water to every pound of sugar, and bring it to a boil. As previously stated, all the old comb must be burned, or made into wax, and so must all new combs made during the four days. No colony is cured of foul brood by the use of any drug.

A. I. Root, of Medina, Ohio, says: "The starvation plan, in connection with burning the combs and frames and building the hives, has worked the best in treating foul brood. It never appeared after each treatment, though it did in some cases where the hives were honey-stained and not boiled, thus comfirming the theory or fact of spores."'

All the difference from the McEvory treatment that I practice is this: I dig a deep pit on level ground near the diseased apiary, and after getting a fire in the pit, such diseased combs, frames, etc., as are to be burned are burned in this pit in the evening, and then the fresh earth from the pit returned to cover all from sight. Often I use some kerosene oil, a little at a time being poured on old broodcombs, or those having much honey in, as they are hard to burn. If diseased combs with honey in are burned on the surface of the soil, there is great danger; the honey, when heated a little, will run like water on the soil, and in the morning the robber bees will be busy taking home the diseased honey that was not heated enough to kill germs of foul brood.

I also cage the queen while the bees are on the five or six strips of foundation. It helps to keep the colony from deserting the hive and going to other colonies.

R. L. Taylor, Michigan University Experimental Apiary, reports: "The plan that the colony be shaken out into another hive after being allowed to build comb for four days, I have proven, in 100 cases, to be unnecessary."

In Wisconsin I, too, have cured several cases by the one transferring, when honey was not coming in very freely, but it is better, and a great saving of time to both bees and owner, to exchange in three or four days, those foundation starters, for full sheets of foundation. Diseased broodcombs and those with honey in, if melted in a sun or solar extractor, the wax, honey or residue is not hot enough to kill germs of foul brood. This I have proven by several experiments. It must be boiled and well stirred while boiling, to be safe.

I do not believe in, or practice, burning any property, such as hives, bees, beeswax or honey, that can be safely treated and saved. Many times it is poor economy to save all, and so many bee-keepers are not so situated as to keep all diseased material from robber bees while taking care of it; the best and oly safe way is to burn the diseased combs and frames.

Utah.

Utah has county inspectors, and from one who has remarkable success I copy the report of his method of treatment:

"Wherever found it should be dealt with earnestly and with dispatch. If the colony is weak, I recommend something to kill the bees, and, in order to do this without letting a bee escape, take a tablespoonful of sulphur and place it in the hive entrance of the hives; if there is any breeze, turn the hive so it will blow in the entrance. Then fire the sulphur and it will soon kill the bees. This should be done early in the morning, before any of the bees are flying, as one bee escaping fro mthe hive might carry the disease to any colony with which it may take up its abode. If the colony is a strong one, I would keep the entrance partly closed, so as to prevent any other bees from getting in. Then as soon as fruit blossoms come out so the bees can obtain honey, I treat them. I procure an empty box of any kind, so it is clean, then find the queen, put her in a screen wire cage, which is easily made. Take a small piece of screen roll it up and tie a string arond either end; cork up one end, then place the queen and a few workers, for company, in the cage, and place in the other end cork. Put same in this box, and shake all the bees out of their hive into this box. This must be done in the evening, when no bees are flying. Keep the queen in this box for 24 to 48 hours, allowing the bees to fly in and out as they please. Next take a clean hive, with good, healthy combs or founda-

tion, and shake bees into it, letting the queen go, and they will be free from disease. The old combs are melted into wax, bringing same to a good boil. Often washing with boiling water any hives or implements that might contain disease. Whenever strictly followed, this has affected a cure."—C. Wilcox, Emery Co., Utah.

Pickled Brood.

Some seasons pickled brood is quite bad among bees, and in a few cases I have known it to reduce large colonies, even large apiaries, to doubtful hopes, but those same colonies, after I gave them treatment, were in a month free from disease. Sometimes it takes as careful handling as if foul brood. I do not believe it is contagious, for all I have seen 60 colonies in one apiary badly reduced by it. As an experiment, one of my out-apiaries had 50 colonies at one time with pickled brood. I treated them, and all were soon free from dead brood. At the same time I took ten of the worst brood-combs, where at least two-thirds of the brood were dead, and placed these combs in other strong, healthy colonies. They at once cleaned out the dead brood, and reared as nice brook as one could ask for.

Symptoms.

The larval bees (in last of May and through June) show light brown spots; a little later the cappings have small holes in—the cappings are not shrunken or dark colored, as in foul brood. The dead bee will be first swollen, with a black head dried to a hard bunch, and often turned up—Chinaman-shoe-like. The skin of the dead bee is quite tough, and, if punctured, the thin, watery fluid of the body will flow as freely as water, often a little yellow or brownish colored from the dissolved pollen from the abdomen of the bee. It has very little or no smell; does not at any time stick to the walls of the comb; is easily pulled out of the cell; is never ropy or sticky, and, if the colony is properly cared for, the bees will take care of themselves. Plenty of liquid, unsealed honey and pollen near the brood, and hives so protected as to keep the bees and brood comfortable on cold days and nights.

Never put bees on old black brood-combs, or those with dead broods in; better make wax of the combs, and give the bees full sheets of broodcomb foundation.

Treatment.

Keep all colonies strong, with plenty of unsealed honey near the brood, and if hives are properly sheltered, so as to be warm on cold days and nights, there will be little or no pickled brood. If the queen is old, shows signs of weakness by putting several eggs in one brood-cell and nursing several others, so that the brood is patchy, I would kill such a queen, feed the bees a little, and, when queen-cells are started, remove them all and give them a queen and bees, between two of her own brood-combs from a hive where she has lived. I do not think pickled brood is often the fault of the queen, but rather a lack of proper food and heat in the hive. In most cases, a shortage of liquid honey, or moldy pollen, even in hives with plenty of sealed honey in the outer combs. There is a time in spring in Wisconsin, between dandelions and white clover bloom, when there is no honey coming in from flowers, and often cold days and nights, so that the live bees consume the liquid, unsealed honey first, and cluster in a compact body to keep warm; the result often is the larval bee, just changed from the egg to a tender little grub, is either starved, half-fed or chilled, so that it grows slowly, and too often it dies, and then it is we first notice this about the time white clover honey begins to come in. In other parts of the state, where pickled brood appeared, it was from the same cause, and at other dates, which was due to a difference of time of honey bloom.

Wherever I fed daily some honey, or even sugar syrup, and kept the hive warm, all dead brood soon disappeared while in the same apiaries other colonies affected and not so treated, continued for some time, but got rid of it as soon as treated.

Strong colonies of bees in the fall, with a young laying queen, and an abundance of good honey, sealed or capped by the bees, if properly cared for during winter, whether in the cellar or in chaff hives, wintered out of doors in sheltered location, seldom have pickled brood; chilled or other dead brood, or dysentery, and are the colonies that give their owner profit.

Black Brood.

Black brood is another fatal and contagious disease among bees, affecting the old bees as well as the brood. In 1898, 1899 and 1900, it destroyed several apiaries in New York. Last year I found one case of it in Wisconsin, which was quickly disposed of. Dr. Howard made more than a thousand microscopic examinations, and found it to be a distinct form of bacteria. It is most active in sealed brood. The bees affected continue to grow until they reach the pupa stage, then turn black and die. At this stage there is a sour smell. No decomposition from putrefactive germs in pickled brood. In black brood the dark and rotten mass in time breaks down and settles to lower side-walls of the cell; is of a watery, granulated, syrupy fluid, jelly-like; is not ropy or sticky, as in full brood, and has a peculiar smell, resembling sour, rotten apples. Not even a house fly will set a foot upon it.

Treatment.

Best time is during a honey-flow, and the modified McEvoy plan, much as I have treated foul brood, by caging the queen five days, remove the foundation starters and giving full sheets, keeping que n caged five days longer. As great care should be taken of diseased hives, combs, honey, etc., as in foul brood.

Dysentery.

Dysentery among bees in Wisconsin in the spring of the year is often quite serious. Many colonies die with it. Dysentery is the excrements of the old bees; it is of brownish color, quite sticky, and very disagreeable smelling, and is sometimes mistaken for foul brood.

Causes.

1. Bees confined too long in the hives, so that they can no longer withhold their excrements, and are compelled to void the same on the other bees and combs.

2. Poor winter stores, gathered in the fall from honey-dew, cider mills, sorghum mills, rotten fruit; also some kinds of fall flowers.

3. Old and especially moldy pollen or bee-bread.

4. Hives too cold or damp. If moisture from the breath of the bees is not carried out of the hive by some means, such as through a deep cushion of some kind over the bees that will absorb moisture and at the same time retain the heat, or by some means of ventilation, so that all is dry and comfortable. If mold forms on the combs or cellar is so damp as to form mold, there is great danger the bees will have dysentery and die.

Treatment.

1. First of all, have an abundance of combs of sealed clover or basswood honey in brood-frames carefully saved, and see that each colony is wintered on such food. Three or four such combs will winter a fair colony safely, if confined on those combs late in the fall, and the hive contracted to fit the same. This is one of the most important conditions for success in wintering.

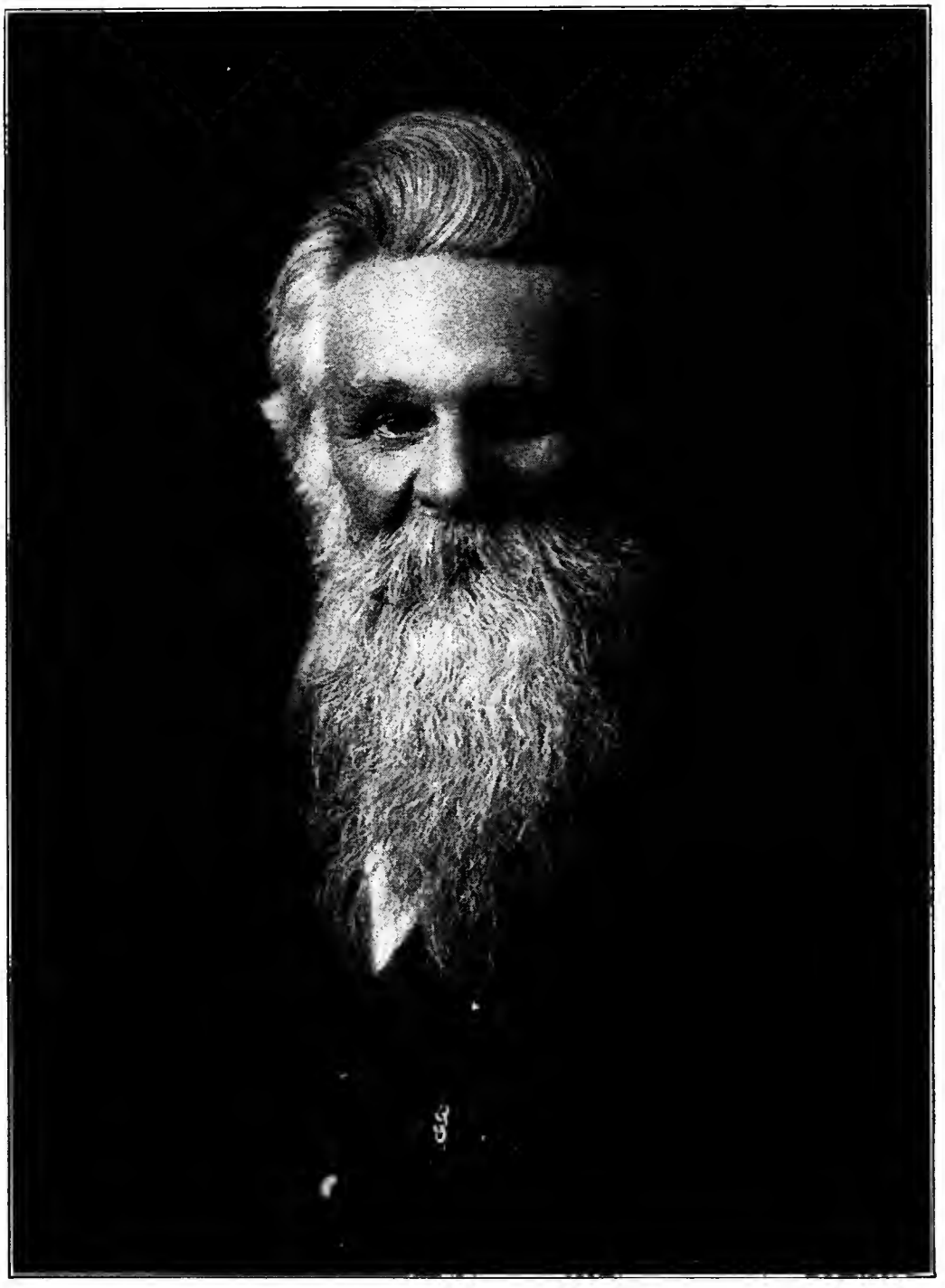
2. If in the fall the bees have gathered this unwholesome honey from the above named sources, it should all be extracted and either exchanged for those honey-combs, or feed the bees good honey or sugar syrup until winter stores are secured. This should be done before cold weather in the fall.

3. Hives contracted and made comfortable, whether in cellar or outdoors.

4. If wintered in chaff hives outdoors, with feed as above directed, and there come one or two warm spells during winter, so that the bees can have a cleansing flight, they will not have dysentery or dead brood, and will be much stronger when clover opens.

If wintered in the cellar, the bees will not need so much honey, and if the winters are generally long, with doubtful warm spells, the cellar will be best. But to keep the bees from dysentery, so often fatal to cellar-wintered bees, they should have such winter stores as above spoken of, then the cellar kept at a medium temperature, about 32 deg. F., ventilated so the air is fresh, and no mold will form in the cellar. Fresh air-slaked lime on the bottom of the cellar may help, if it is damp or has poor air.

5. Dysentery will not appear if bees are kept on sugar syrup, or best grade white clover or basswood honey, and are in a dry place, either sheltered by cellar or chaff-hive.



E. J. BAXTER, President,
And a Director of the National.

JAMES A. STONE, Secretary.

PROCEEDINGS

—OF THE—

Twenty-Fourth Annual Session

—OF THE—

Illinois State Bee-Keepers' Association

November 19 and 20, 1914,

AT THE STATE HOUSE.

The 24th Annual Meeting of the Illinois State Bee-Keepers' Association was held in the State House at Springfield, Illinois, November 19 and 20, 1914.

The meeting was called to order by the President, Mr. E. J. Baxter, at 10:30 a. m., November 19th.

Reverend Donald C. MacLeod offered the prayer as follows:

Let us all bow before God.

Almighty God, Thou doest Thy will among the hosts of heaven and Thou rulest also among the inhabitants of the earth.

We rejoice that Thy sovereignty is wisdom, righteousness, goodness and love. Thou doest all things according to Thine own will and Thou doest all things well.

We rejoice, Oh, God, in Thy sovereignty. We bow before Thy throne, and we would respond with our hearts and also with our lips to the great words of Thy Son, our Savior—Thy will be done on earth as it is in heaven.

We pray thee, Oh, God, to so control the deliberations of these men here assembled that everything shall be done to Thy name's honor and glory. We pray Thy blessing, Oh, God, upon the enterprise throughout the state in which these men are engaged.

We beseech Thee, Oh, God, to prosper them in all that they shall undertake to do—that it shall be pleasing in Thy sight.

We pray Thy blessing on all the righteous enterprises of this city and all our cities. We pray thee, Oh, God, to smile upon us as a nation with the smile of Thy approval, so that as a people we shall be workers together with God and be a nation whose God is the Lord, a people whom He has chosen for His own inheritance.

To this end we pray Thy blessing upon the President of the United States, the Cabinet and Congress, and upon all the great institutions of our country, our army, and navy. We pray Thy blessing, Oh, God, upon the Governor of this state and upon our legislature that is about to convene, and upon our citizenship. Grant, Oh, God, that our citizenship as well as our leaders shall be responsible citizens and leaders, doing the will of God—so shall Thy Kingdom come, and we shall enjoy prosperity and peace and righteousness and the blessing of a loving heavenly Father.

We commend ourselves to Thee, Oh, God, in this Convention, believing that if we commit our ways to God He will bring good to pass, making our righteousness to shine as the noonday sun.

Our Father, who art in heaven, hallowed be Thy name. Thy kingdom come. Thy will be done on earth, as it is in heaven. Give us this day our daily bread; and forgive us our debts, as we forgive our debtors. And lead us not into temptation, but deliver us from evil; for Thine is the kingdom, and the power, and the glory, forever.

President Baxter—The next number will be the welcome address by the

Honorable W. A. Northcott, President, Commercial Association, Springfield.

Address of Welcome.

Mr. President and Members of the Bee-Keepers' Association of the State of Illinois:

"It affords me great pleasure to come here at your invitation as a representative of the Springfield Commercial Association to welcome you to our city and to thank you for holding your meetings here, and to express the hope that you will come again each year if possible and we will try to make it pleasant. You have a comfortable meeting place here and if there is anything we can do to add to your comfort we want to do it.

"I do not know much about bees and you do not expect me to tell you much about the subject. I am a good deal like the young colored preacher who preached his first sermon, and said: 'I don't know anything about religion and neither do you, therefore I will explain it to you.'

"I tried to read up something but didn't have much time and I knew you didn't expect me to instruct you in Bee Culture.

"My daughter is interested in bees but she cannot come here because she has a little baby a year old, and many hives of bees do not tie you down closer than one baby will a mother. You ladies know a baby requires the attention of mother most of the time. She is the meal ticket for the baby; she must be on hand at the right time.

"I remember Shakespeare says something about bees in speaking of government, that well ordered government is like the bee hive; it speaks of the queen bee and the drones. It is very beautiful if you have not read it. I don't remember the place where the bee is spoken of. Shakespeare is eloquent in speaking of the bee. He says that the bees have the best government on earth; that theer is absolute obedience; and that the intelligence of the bee is a wonderful thing.

"I tried to get some bee jokes; I looked through my library and found a book and on the back of it it said—"STUNG". I thought that applied to bees sure but there was nothing about bees in that book. My reading was like the Irishman, when the Court went to sentence him.

"How much education have you had? Have you ever read your Bible?

'No, I have never read my Bible.

"What have you read?,

"I have a few red hairs on the back of my neck.

"I did not read up on bees because I knew you would not expect me to talk on that subject. I wish I could stay and hear you talk about it; I am a little old to learn and do not expect to go into the bee business, but I would be interested in hearing about it—

"We are proud of Springfield; I know a little about that. I have only lived here ten years. They are a hospitable, pleasant people, many of them Southern people, who came here from Kentucky and Virginia. Lincoln was a Kentuckian. Most of the people around Springfield are old Kentucky people and very hospitable.

"A story is told of one of the Mayors of Springfield. He went off to attend a meeting of Mayors and bragged about our city, so much so that it made the people tired; they put up a joke on him. One of the speakers told this story: Mr. Schnepp dreamed that he was dead and went to the other world. The attendant showed him about. He looked around and said—"Heaven is not very different from Springfield." The attendant said: "Mr. Schnepp, you ain't in Heaven." (He had gotten into the other place.)

"I heard a good one about this war; there were a lot of fellows looking at the bulletin board; they all thought that they could fight it better than the Kaiser—to hear their opinions about the war around the bulletin board. One fellow said: "Well, the Germans can lick them Russians and the French and the Belgians and English—but I don't know about those Allies; I don't know anything about them.

"I want to say to you that the value of getting together and organizing and talking about a common pursuit or subject is very great. This world is moving along by a comparison of ideas. If I lived in the woods by myself I would not develop very much. You are dependent upon a comparison of ideas for development. This world has moved faster the last hundred years along scientific lines than it has moved in all ages that have gone before. Fire, air, earth and water are

all made by science to administer to the comforts and luxuries of man.

"We have harnessed the lightning, used the water for transportation and the air and fire are our servants to do our bidding; science has brought it about, and science has reached the farm as strongly as shop and city. The farmer today understands the value of stock—the value of marketing—how to keep it pure.

"But it is not the big crops, like corn and wheat and oats, that bring money to the home; it is the little things that the farmer's wife looks after around the house. The butter, the chickens, the eggs are bringing more money into this country than the gold and silver mines, and wool.

"You take the honey product. I have not the figures as to the annual amount that it brings—but it is a great help, and when the big crop fails it is the little things that bring the money on the farm, that the farmer's wife looks after, that saves the day and keeps from going into bankruptcy and the poor house.

"We do not realize the value of the smaller things on the farm.

"Much good can be had through these Associations—the getting together and hearing of the experiences of each other. None of us know it all, but when we get together and swap experiences we learn what the books as well as individual experience teach.

"We used to think a book man was not practical, but we are coming to learn from experience that books mean a good deal. You may have good judgment but you will always be able to learn something from the books, and then use good hickory-nut sense in carrying out what you read. No one man knows as much as all men know. As Lincoln says: "You can fool all the people part of the time and part of the people all of the time, but you can't fool all of the people all of the time."

"College education is good but it will not take the place of experience. An ignorant expert is better than a learned fool, but I believe a learned expert is best of all. Theory and practice go together. As iron sharpens iron when coming together, so it is where you come together to talk about bees—your individual experiences help each other.

"This is an age of thought; a thing has got to be thought out before it is wrought out. I used to think that the greatest thing was to be as strong as Samson; I pulled up a tree one day and said—"I am as strong as Samson" —and I got licked.

"I thought I would like to be a good fighter; then I thought I would like to be good looking so that the girls would like me; I thought I would like to be eloquent so that people would hang on to my words—but experience teaches me that life is in knowing how to think right. You have seen sometimes a great six-foot, healthy looking man with plenty of courage and strength who could not make a living and was being supported by a hunchback.

"The farmer of today does a good deal more thinking that he used to. We used to get so tired on the farm that we could not think and had to sell the farm out because it didn't pay. Now it takes thought. Some of the richer farmers never follow the plow. This is the age of thought."

Mr. Stone (Secretary)—Mr. President, I want to make a motion before these gentlemen leave—that all the participants in the program be made honorary members, and get badges.

Motion put by President, seconded and carried.

President Baxter—The next on our program is the President's address. Brother Moore, the first Vice-President, will please take the Chair.

(Mr. W. B. Moore, Vice-President, takes the Chair.)

President's Address.

Mr. Chairman, Ladies and Gentlemen:

On behalf of the members of the Illinois State Bee-Keepers' Association, I wish to express our sincere appreciation of the warm and hearty welcome extended to us by the City of Springfield, through the President of the Commercial Association of the city, the Hon. W. A. Northcott, a co-laborer in the cause of progress.

Springfield is numbered among the most progressive cities of this, the most progressive state in our most wonderful union.

We have met here before. In fact we have met here each and every year since our Association first came into existence some twenty-four years ago, and we have always had the glad hand

of fellowship extended to us, as far as I can remember, by the citizens of Springfield.

For my part, I love the City of Springfield. I love the hallowed ground wherein rests our martyred President, the unapproachable and incomparable Lincoln, and I love this wonderful Capitol Building in which our association has met these many years. It is the conception and handiwork of one of Nauvoo's illustrious citizens of long ago, Mr. Picnard, and it recalls memories of my boyhood days. Much of the stone that is in these walls was dug from the hills about our city where I used to roam in the long ago watching the quarrymen at work taking out the stone and loading them on barges ready to ship. Oh, those were happy days in that far off time when Hope sprang eternal, and deceit and dissimulation were unknown.

"Oh, I know that Life is pleasant and
I know that Life is fair,
But I want the glad returning of the
days beyond compare.
Of the days when hope was springing,
of the days when hope was fast,
And the Future seemed all golden as I
judged it by the Past."

"Oh, I know that Life is earnest and
I know that Life is real,
But I want the dreams and visions and
the joys I used to feel.
Oh, the days that know no shadows and
the dreams that held but joy
Must they have forever vanished when
I ceased to be a boy?"

"Oh, I know that Life is pleasant and
I know that Life is fair,
But I want the glad returning of the
Faith that went—somewhere."
And I want to trust my neighbor and
I want to know myself
And I want to lose the feeling that
there's nothing real but pelf."

My friends, the memories of childhood are eternal, and we all cherish them with an unfailing devotion to the end of life. And it is well that we do, for in them we live our lives over again to a great extent, and feel that peaceful satisfaction and contented joy that nothing else can give.

Leaving the ethereal world for the practical one, it behooves us on this twenty-fourth anniversary of our organization to take our bearings "to see where we are at". Surely bee culture has made rapid strides in these few years, but there is yet much to accomplish for the bettering of the vocation.

There was a time and that not very many years ago when bee-keeping as a vocation for profit, as a means of gaining a livelihood, was little thought of, and riidiculed by many. Today, thanks to the researches and untiring labors of such men as Father Langstroth, Quimby, Root, Gallup, Charles Dadant, Grimm and a host of later laborers in the cause, bee-keeping has become a recognized vocation of prominence, producing, in the United States alone, millions of dollars annually in the product of honey and bees-wax, which, without the bees to gather it, and a knowledge of their profitable management, would be a total waste. Aside from this, who can name the many millions of dollars in fruits, vegetables, grains and seeds that the honey bees contribute in producing, through the pollenization and cross-fertilization of the plants and trees of our fields? There was a time when this fact was ridiculed as the visions of an enthusiast and a theory without the slightest foundation. But today no one who pretends to a liberal education, and is posted in the phenomena of Nature, will deny the fact for a moment. It is no longer spoken of as a theory but as a recognized fact, and many experiments are being made to ascertain how best to employ the honey bees in this vast field of work so as to obtain the best results.

A noted naturalist, who is making a study of this subject, recently said that there were about sixty species of insects in this country, more or less widely distributed, that help to pollenate and cross-fertilize the flowers of our fields and orchards, by these visits to them, but that the honey bee does vastly more in this respect than the fifty-nine species of other insects combined.

Here, surely, is food for reflection and it gives us some idea of the great importance of the honey bee to the country at large, aside from its usefulness in gathering the vast stores of sweets that would go to waste without it.

It is only recently that bee diseases have spread so rapidly in this country as to threaten to wipe out the industry

of bee-keeping from one end of our land to the other. But thanks again to the foresightedness, and the unselfish devotion and energy, of many of our prominent bee-keepers and the friends of progress in all parts of our land, we now have good, wholesome laws, in most of the states, that are doing a great deal to check these ravages. In fact, in states where the law is rigidly enforced by a competent Inspector, and where the necessary funds have been appropriated to do the work properly, as in our own state, the dreaded foul brood diseases are not only being checked from spreading farther, but are actually being stamped out from many localities. Let this good work go on.

The Annual Report of our State Foul Brood Inspector, Mr. Kildow, to be given later in the day, will show you what has been acomplished during the past year.

There is one subject that I want to bring to your attention, which should interest every bee-keeper in Illinois and which should receive his best thought and his undivided and unselfish consideration. That is, co-operation among bee-keepers—its aim and scope, and how best can it be accomplished.

Should the National Association be reorganized to take up this work, and, if so, to what extent should this co-operation be taken up?

Or should the matter of co-operation be limited to state organization exclusively? This is a deep subject of vast importance to the bee-keeping fraternity of every state, and it should be carefully studied and considered, and I would recommend that the matter be thoroughly discussed at this meeting.

Another subject of great importance to the members of affiliated associations is the present status of the National Bee-Keepers' Association—is it fulfilling its purpose, and is it of any benefit to its members as it is now organized and conducted?

This should have your serious, impartial consideration, and I would recommend that this be also fully discussed at this meeting, and a resolution setting forth your conclusions be adopted, as a guide to the actions of the delegates you may elect to attend the meeting of the National next February in Denver, Colorado, should you see fit to elect one.

There is still another important matter that I would like to have you consider and to take action upon.

Article II. of our Constitution says:

"The object of this Association shall be to promote the general interests of the pursuit of bee culture." Such being the case, I would recommend that your Executive Committee be empowered to make arrangements for holding from three to six field meetings, next summer, including the Tri-State field meet which has already been arranged for at Hamilton, Illinois, some time late in next July or early August, by the Iowa State Society, Illinois and Missouri co-operating therewith. These field meets, I believe, should be in charge of your President for 1915, for which service he will receive no pay more than his expenses.

These field meets should be held at such times and places as will accommodate the most bee-keepers in that section of the state, and not more than two of these meetings should be held in any one of the three Supreme Court Judicial Divisions of the state.

And still another very important matter that I wish to call to your attention is the necessity of co-operation between the various Public, Industrial, Educational and Philanthropic Associations of the state in matters of general interest, and as a means to that end I would recommend that this Association name a committee to work in conjunction with committees of other Associations with that object in view.

I believe that your Executive Committee, or, better, possibly, your Legislative Committee, would be the logical committee to entrust this work to, as it will comprise mainly legislative matters.

Now in conclusion allow me to remind you of the frightful weather conditions that have obtained over most parts of our state the past season. The awful drought has probably been the very worst that has ever been experienced in this state, and the bee-keepers as well as the tillers of the soil have suffered in consequence. The outlook for the coming season is anything but bright, but I have seen a fairly good crop of honey gathered following a rather discouraging prospect in the

spring. So let us take courage and hope for the best.

"Still achieving, still pursuing,
Learn to labor and to wait.
Heart within and God o'erhead."

I thank you, my friends, for your kind indulgence.

Mr. Moore—Our President's address, I think, makes some very good recommendations for our consideration. Several points raised we will bring up later.

In regard to the work of the National—I think it would be well to let the discussion on that subject wait until we have heard from Dr. Gates, who will be here tomorrow.

Pres. Baxter—We will have the reading of the Minutes of the last meeting, which should have been read before the address of the President.

Minutes of the 1913 Meeting, November 5th and 6th.

(23d Annual Meeting.)

10 a. m. November 5th.

Meeting called to order by the President, E. J. Baxter.

Prayer was offered by the Rev. E. S. Combs, of the Douglas Avenue Methodist Church.

The Minutes of the previous meeting were read and approved.

The President in a short address spoke of the extremely bad beginning of the year for bee-keepers and of the very favorable ending of the season.

The Secretary's Report was read, accepted and placed on file.

The President named the following Committees:

Committee on Resolutions: Messrs. Pyles, Coppin and King.

Auditing Committee: Messrs Moore, Duby and H. C. Dadant.

Premium List Committee: Messrs. Stone, Coppin and Becker.

On motion of Mr. Moore, the Executive Committee was made the Legislative Committee, with power to call any member of the Association to their aid.

After quite a discussion it was decided by the President that a member had the right to join only the State Association if he so chose, and as the Constitution, Article III, Section I, says the fee shall be $1.00, we cannot debar any one who offers his fee of that amount.

Mr. Kildow was appointed to conduct the Question Box.

The Convention took a recess long enough to go to the north front of the State House to have a group picture taken.

No night session was held, as many of the members desired to go to see the moving pictures of Dr. Scott's trip to the South Pole.

Second Day.

The matter of prizes offered for essays was taken up, and, after considerable discussion, it was voted that the prizes offered should remain the same as before, viz.: $5.00, $4.00, $3.00, $2.00, $1.00, and the essays to be along a practical line.

On motion the Convention proceeded to the Election of Officers, with the following result:

For President for the year 1914, the Secretary was instructed to cast the ballot for Emil J. Baxter.

The balloting for five Vice-Presidents resulted as follows:

1st. Aaron Coppin.
2d. W. B. Moore.
3d. H. S. Duby.
4th. I. E. Pyles.
5th. H. C. Dadant.

For Secretary the President was instructed to cast the ballot for James A. Stone.

For Treasurer the Secretary was instructed to cast the ballot for Charles Becker.

A motion prevailed that the Secretary be allowed $50.00 for his work in connection with the publishing of our Annual Report.

The First Prize for Essay was awarded to James Poindexter.

Voted: That the Executive Committee fix the date for the next meeting.

A motion prevailed that the Executive Committee invite speakers to our next meeting from outside the state. Hon. N. E. France and Dr. Phillips were named.

At 2 p. m. November 6th, sine die adjournment was taken.

James A. Stone, Secretary.

Pres. Baxter—Ladies and gentlemen, you have heard the reading of the Minutes. Are there any corrections or objections?

Pres. Baxter—We will consider the

Minutes adopted as read if there are no objections.

Minutes adopted as read.

Secretary's Report for 1914.

During all the years (about 45) that your Secretary has kept bees, he cannot recall one in which the honey crop was so poor the whole season through as during the present year.

In the beginning of the honey season we had a small surplus of dandelion honey, though no more than was needed for brood rearing.

The season was so dry that the dandelions were cut short, and no white clover appeared, and all through the apple bloom and the linden bloom the bees did not gather enough honey from either to make it perceptible in their hives.

We did not put on a single surplus case, as we saw the bees were gathering nothing but honey-dew honey, which they continued to gather all summer, until we had a light flow from heart's ease, which left our colonies mostly in good condition.

In a Farmers' Bulletin from the U. S. Department of Agriculture, September 16, 1914, we get a report from all the States. (The same was copied in the last number of the Review.)

There were but nine states which reported a larger yield per colony than in 1913, viz.: Maine, West Virginia, North Carolina, Louisiana, Texas, New Mexico, Washington, Oregon and California. Of these New Mexico stood the highest—with 85 lbs. per colony, while California stood second with 75 lbs. per colony.

On the other hand Missouri stood lowest—with but 5 lbs. per colony; Kentucky next—with 8 lbs. per colony, and Illinois stood third—with 12 lbs.

	This Year	Last Year
Our membership list this year numbered	234	205
Those coming through Chicago-Northwestern	46	44
Those coming through Northern Illinois and Southern Wisconsin	16	14
This year a new list was added from the Eastern Illinois Bee-Keepers' Association, St. Anne, Illinois—(Newly formed) ..	13	
The members direct this year were	172	147

A gain of twenty-five.

We are led to believe that the increase in our membership is largely the result of our having obtained our Foul Brood Law; also aided greatly by the blank applications for membership that we send out the first of the year.

We had the usual number of reports printed of last year's proceedings, viz.; 300 cloth and 100 paper covers—mostly sent out.

We also sent out the usual number of blank applications for members (1,000).

When we were getting our last report ready for the printer we received letters from parties who had explained the workings of their several patent devices in the Chicago Convention, asking permission for the insertion of the cuts of their patents in our report.

This is our answer to them:

March 23, 1914.

Mr.————————

Dear Sir:

I agree with you in that I believe an illustration of your SECTION FIXER in our report would be desired by many of the members of our Association, and, speaking for myself, I would say, yes.

We have had several applications for like insertions and we have answered them along the same line as follows:

Our State Association has usually made the Executive Committee the Legislative Committee also, with power to add to their number if they thought it necessary.

On one occasion we had with us Mr. York of the American Bee Journal and, when we introduced him to the House Appropriation Committee as the Editor of the American Bee Journal, the Chairman spoke out loudly, "If Mr. York is here to advertise his paper you don't get a dollar. We make this appropriation to the Illinois State Bee-Keepers' Association, as the Bill reads, and not to advertise any man's business." The state appropriation says for the publishing of our report, and, when we begin to let ads work in, the Executive Committee (knowing what I have stated above) cannot face the legislature and ask continuation of the

appropriation, and I am sure you would not ask them to.

I have written this to explain the authority that is over us.

Sincerely yours,

(Signed) JAMES A. STONE.

The credit for the program we have this year falls upon this Association for the reason that the members named some of the parties whom we were to invite to take part on the program.

Unconsciously we were fortunate in having the date of this meeting so set that we could avail ourselves of the speakers on the program of the state meetings in other states.

We favor the continuation of the same arrangement.

The time of our meetings in past years has been set for the same week as the Odd Fellows in order that our members belonging to that Lodge could attend both, and because of the fact that they occupied all the lower rooms of the State House we were compelled to take an upper committee room.

We also placed our meeting late in the week in order that the hotels could be relieved of their crowded condition.

We have not yet investigated to know whether it was a happened affair that we obtained this room or whether we may expect it again.

We can no more than fail in trying (with the sweetening process).

Sec. In Account with the State Fund.

1913.

Oct. 30—Miss Davis to typewriting Secretary's Report....	.25
Nov. 1—Stationery	.60
Nov. 6—Kessberger, picture of group	2.00
Nov. 12—100 2c stamps and 100 1c stamps	3.00
Dec. 29—1,000 1c stamped envelopes	11.00
1914.	
Jan. 2—State Register to printing circular letters, letter heads, etc.	21.85
Jan. 10—2 fees in stamps.....	1.00
Jan. 14—2 fees in stamps.....	1.00
Jan. 24—1 fee in stamps.....	.50
Feb. 28—Carbon sheets, and paper for manifolding	3.90
Mar. 5—50 postal cards.....	.50
Apr. 4—250 large Manila envelopes	2.75
May 15—100 6c stamps, and 1 quire foolscap	6.20
May 25—200 5c stamps, 200 2c stamps and 200 1c stamps	16.00
Aug. 28—2 fees from L. C. Dadant, in stamps	1.00
Sept. 30—500 2c stamped envelopes	10.62
Oct. 16—50 badges @ 15c	7.50
Oct. 19—1 300-page roll book, and indexing and stationery	2.50
Oct. 31—400 postals and printing of program	4.75
Total	$96.92

Pres. Baxter—Ladies and gentlemen, you have heard the report of the Secretary, what will you do with it?

Mr. Moore—I move the report be accepted and the Financial Report referred to the Auditiing Committee.

Motion seconded and carried.

Mr. Moore—Should there not be a Secretary's Report for fees received and moneys transferred to the Treasury?

Mr. Stone—I didn't give that part of the report. I thought that was to be left out and the Treasurer give it; I can make that report from my book.

Mr. Moore—Of course the book will be referred to the Auditing Committee; it is only a matter of form to give it now so that the Association as a whole may know about it.

Mr. Stone—(Reading from book.)

Nov. 2, 1914—Amount of fees from Northern Illinois and Southern Wisconsin, 16 fees.	$ 8.00
Nov. 2, 1914—To amount from the Chicago-Northwestern, 1914, 46 fees.....	23.00
From the State Association, 171 fees	85.50
Total	$116.50

Pres. Baxter—The next will be the Report of the Treasurer.

Mr. Becker—I want to state that—before beginning to read my report—last year we were in a kind of financial strait—but after April 16th I got the appropriation that should have been due (or was due) a year ago last July, the first of July; then in July I got the other appropriation for this year, so from them on we had plenty of money and we got the best showing for this year that we had ever before.

Pleasant Plains, Ill., November, 1914.

TREASURER'S REPORT.

Illinois State Bee-Keepers' Association.

(From November 5, 1913, to November 18, 1914.)

C. Becker, Treasurer.

STATE FUND.

1913	
Nov. 5, Bal. on hand	$ 177.28
April 16, Received from state	1,000.00
July 20, Received from Treas.	1,000.00
	$2,177.28

ASSOCIATION FUND.

1913	
Nov. 5, Bal. on hand	$ 180.94
Nov. 13, Received from J. A. Stone	116.50
	$ 297.44

Credit.

Nov. 13, J. A. Stone	$ 100.00
Bal. on hand	197.44
	$ 297.44

Debit.

To Bal. on hand Assn. fund	$ 197.44
To Bal. in State fund	1,215.97
Total on hand	$1,413.41
Pd. on order, State fund	$ 961.31
Pd. on order, Assn. fund	100.00
Total	$2,474.72

1913.		
Nov. 5—Rev. E. S. Combs	38	$ 5.00
Nov. 5—C. Becker	39	.80
Nov. 5—C. Becker	40	25.00
Nov. 5—J. Poindexter	41	5.00
Nov. 5—L. M. Stewart	42	10.00
Nov. 5—L. C. Dadant	43	16.25
Nov. 5—L. M. Stewart	44	69.00
Nov. 5—L. M. Stewart		45.00
Nov. 5—L. M. Stewart	45	63.50
Nov. 5—State Register	46	336.00
Nov. 5—J. A. Stone	47	50.00
Nov. 5—W. B. Moore	48	20.83
Nov. 5—W. B. Moore	49	8.02
Nov. 5—A. O. Heinze	50	6.37
Nov. 5—Arthur Lee	51	2.30
Nov. 5—W. B. Moore	52	28.35
Nov. 5—J. H. Roberts	53	11.48
Nov. 5—I. E. Pyles	54	9.57
Nov. 5—Arthur Lee	55	10.35
Nov. 5—A. O. Heinze	56	14.95
Nov. 5—C. F. Bender	57	1.70
Nov. 5—A. O. Heinze	58	14.53
Nov. 5—Arthur Lee	59	9.88
Nov. 5—W. B. Moore	60	40.20
Nov. 5—J. A. Roberts	61	11.41
Nov. 5—Arthur Lee	62	37.00
Nov. 5—J. A. Stone, Exp.	63	96.92
Nov. 5—J. A. Stone	64	1.90
Total Paid		$ 961.31
Bal. on hand		1,215.97
Total		$2,177.28
Receipts in Assn. Fund		297.44
Total—Bal. on hand		$2,474.72

Pres. Baxter—Ladies and gentlemen, you have heard the report of the Treasurer, what will you do with it?

Mr. Moore—I move that the report be accepted and referred to the Auditing Committee.

Motion seconded and carried.

Mr. Bowen—I understand that you have an Auditing Committee; it seems to me that technically this report should go to the Auditing Committee before being adopted.

Pres. Baxter—It has not been adopted; simply accepted and referred to the Auditing Committee.

Pres. Baxter—I will appoint on that Committee: Mr. Moore, A. C. Baxter and Mr. Coppin.

Pres. Baxter—I will appoint Mr. King in charge of the Question Box.

Motion made to adjourn until one o'clock—seconded and carried.

FIRST DAY—AFTERNOON SESSION.

The Convention was called to order by Pres. Baxter at 1:30 p. m.

Pres. Baxter—Any standing Committees to report? I expect not; the Legislative Committee did not have anything to do; there was no legislature. Are there any other committees to report? Any unfinished business? If not, the next number on our program will be the address of Prof. F. S. Mosier, of the University of Illinois.

Mr. Mosier—This is a little bit out of my line; you talk about bees and I do not know very much about bees, but I know something about honey, especially when we have it with good hot biscuits and butter—but there is a subject of interest not only to the farmer but the bee-keeper as well, I presume, and that is the subject that I am to speak on today.

What I have prepared is in the form

PROF. J. G. MOSIER.

of a paper, and if at any time there are any questions you desire to ask, or discussions on the subject, anything that you would like to bring up, I should be glad to have you do so.

SWEET CLOVER.

(By J. G. Mosier.)

Sweet clover has been growing for many years along our roadsides, ditches and in waste places. Men have been slow to recognize its possible agricultural value. By most farmers it was looked upon as a very undesirable weed and that it must be kept out of our cultivated fields at all hazards. The greatest surprise has been that it has not spread into our cultivated fields to any extent, due probably to lack of inoculation and the ease with which it is killed by plowing.

Sweet clover is a legume and is found generally distributed over Illinois with the exception of the southern ungladiated area and the lower Illinoian glaciation. There are two species found in the state, both of which are biennials and cultivated to some extent.

The white flowered species (Melilotus alba) is most common and the most desirable on the farm because of the larger productiveness both organic matter and seed. The yellow flowered species (Melilotus officinalis) is found in various places of the state but is not so commonly distributed as the other and is not so desirable for the farm. Other species are known but require no attention here. The two species mentioned differ in their habit of growth, the yellow being more diffuse or spreading.

Soils.

Sweet clover will grow on almost any kind of soil that is not acid and that is fairly well drained, provided the proper bacteria are present. Acidity is fatal to sweet clover, especially if this is present in any considerable quantity. It will not do its best on soils that are even slightly acid. It grows vigorously in abandoned limestone quarries, gravel pits and on stony hillsides when there is an abundance of limestone present, and is to be found growing on practically every type of soil in the northern

two-thirds of Illinois. These soils embrace stony loams, gravelly loams, sands, sandy loams, silt loams, clay loams, clays, peaty loams and peats. It even grows on alkali soils where it is difficult or impossible to grow grain crops. A soil never becomes so poor that sweet clover will not grow, provided limestone and the proper bacteria are present. It will grow luxuriantly on gullied and eroded hillsides that are so low in organic matter that nothing else will grow. Hence, it is a most important plant for the improvement of these waste lands. The thousands of acres of abandoned eroded land could be improved better by sweet clover than any other crop.

Sweet clover is as sensitive to acidity in the soil as alfalfa, and the same soil treatment is required as for alfalfa. To put the soil in good condition to grow either alfalfa or sweet clover, three to four tons of ground limestone per acre should be applied to most of the soils of southern Illinois. In the central and northern part of the state practically all of the timber soil and the rolling part of the prairie land is acid or becoming so and one or two tons of limestone are necessary for complete success with sweet clover. Many failures from shortage of limestone will be made that will be attributed to other causes.

Seeding Sweet Clover.

1. Seed.

Seed may be purchased in two forms, hulled and unhulled, that is, still enclosed in the shriveled pod. The former is much more satisfactory in almost every way. In this condition the seed resembles alfalfa seed. The unhulled seed contains besides the shriveled pods around the seeds more or less of other impurities, such as sticks, etc., which render it difficult to sow evenly.

As a general rule sweet clover does not give a high per cent of germination because of the dense seed coat which the moisture can not penetrate readily. These are commonly spoken of as hard seeds. Nearly all seed contains considerable quantity of these that do not germinate the first year. They are more abundant in southern than northern grown seed. In 22 samples from different sources, southern grown seed contained 60 while the same number of samples of northern grown seed showed 43 per cent of hard seed. The germination was 14 and 37 per cent, respectively. At the Ohio Experiment Station the average per cent of germination of 37 samples tested by the botanical department was 29.14. Methods of scratching or scouring the seed coat to permit water penetration are being devised which will largely overcome the difficulty of poor germination. This fact of poor germination requires the use of a much larger amount of seed than would otherwise be necessary. It is advisable to sow from 12 to 15 pounds per acre of hulled seed and from 20 to 25 pounds of unhulled seed.

Time of Seeding and Seed Bed.

The time of seeding varies somewhat with the nurse crop. Early spring is the best time. The seed should be sown in the same way as red clover with a light seeding of oats or, still better, barley. When seeded with wheat it may be sown in January, February or early March so that the freezing and thawing may bury the seed in the soil. This early seeding also gives longer time for the moisture to soften and penetrate the seed coat and gives germination. Seeding in the latter part of July may be practiced successfully if the season is favorable. Late summer or fall seeding is not advisable in this latitude as it is liable to heave out during the winter.

The preparation of the seed bed seems to be of secondary importance. The crop does well on a well prepared seed bed and it does surprisingly well on a poorly prepared seed bed. Weeds are the great enemy of young sweet clover and it is much more important that the soil be free of weeds than that the crop have a good seed bed. A nurse crop helps to keep the weeds in subjection. On gullied hill land it is not necessary to attempt to prepare a seed bed. The seed may be sown in late winter or a number of young plants transplanted from the roadside. The seed produced will completely seed the area in a few years and transform this waste land into productive pasture land. It must be remembered that limestone is necessary on nearly all eroded land in the state.

Inoculation.

Sweet clover being a legume requires the presence of certain bacteria in the soil to produce satisfactory results.

This organism has been pretty generally distributed along the roadsides with the mud carried on vehicles and on bottom lands by floods. The higher cultivated lands of the state do not generally contain this germ, so inoculation is necessary. Either one of two methods may be employed:

1. Soil transfer method: Soil is obtained from where well infected sweet clover or alfalfa has grown the past year and scattered over land to be seeded, at the rate of from 300 to 500 pounds per acre. This may be done with a shovel. The harrow should follow immediately to cover the soil and prevent the sunshine from destroying the bacteria and also to distribute the inoculating material somewhat uniformly through the soil.

2. Glue solution method: In this method the infected sweet clover or alfalfa soil with its bacteria is glued to the seed and inoculation produced in that way. About eight ounces of furniture or carpenter's glue should be dissolved in a gallon of hot water, which, when sufficiently cool, should be sprinkled on the sweet clover seed at the rate of about one quart to a bushel of seed. The seed should then be stirred so as to moisten it uniformly. About three quarts of the dry, pulverized soil should be added and thoroughly mixed with the seed. If the work has been well done each seed will have a coating of infected soil around it. The seed should be dried and is then ready for sowing. A safe precaution to be taken is not to allow the sun to shine on seed before it is covered.

The fact that sweet clover is growing luxuriantly along the roadside does not necessarily prove that the adjoining fields contain the proper bacteria. It is always well to make sure and inoculation is one of the conditions that must be complied with in order to be reasonably sure of securing a stand.

Uses—Pasture, Hay and Seed.

Stock easily learn to like sweet clover, especially when young and tender. Permanent blue grass pastures could profitably be seeded to sweet clover since this crop will furnish plant food for the blue grass and result in growing more of the latter than without the clover. Since it is a biennial, in order to obtain the largest amount of green pasture, part of the field should be seeded during two successive years. After that no seeding will be necessary. For temporary pastures sweet clover should be seeded with some other crop such as red, alsike clover or timothy to furnish pasture after the sweet clover has seeded the second year. But little will be eaten after it blooms and becomes woody. The pasture season may be prolonged by clipping with a mower five or six inches high some time before blooming. This starts a new succulent growth that will afford pasture for much longer. The value of sweet clover is being demonstrated on many farms and some experiment stations. The Iowa station has carried on some experiments using sweet clover as pasture for hogs and the first season's growth has proved to be about as good as alfalfa.

The following extract from a letter will show how cattle thrive on this much abused plant: "I had a very fine stand this season following a barley crop. Sixty days after cutting the barley, there was a growth of from 15 to 24 inches. I put 29 steers in this field that were just common feeders in only fairly good condition, purchased in Kansas City. They were fed nothing else but had plenty of water and salt and in 55 days the average gain was 154 pounds each."

The Wyoming Experiment Station found that lambs fed on alfalfa made an average gain of 34.4 pounds each in 14 weeks, while on sweet clover another bunch of lambs made a gain of 30.7 pounds for the same time.

As a hay crop sweet clover is proving to be very valuable. Stock eat it when cured as well as when green. During favorable seasons a hay crop of a ton or more may be cut the first year. One man writes me that his first year's growth made 2½ tons of hay. A crop of hay may be cut during the second year and the second crop allowed to seed or the first crop may be allowed to seed. In cutting the hay crop during the first season's growth, there is no danger of injuring by cutting too low, but, for cuttings made during the second year, the mower should be run at least 4 inches high. New buds or sprouts do not start from the root crown as in the case of alfalfa after being cut once. The new growths start from the stubble and this must

be left sufficiently high to give room for the new buds. The root crown normally furnishes but one series of shoots and if cut too low the second crop will be a partial or total failure. There will be no objection to cutting a second crop of hay if sufficient growth takes place. This will damage the seed crop, however.

Cut the first crop before it blooms and the second crop before it becomes too woody.

Mr. Graham, of Rochelle, filled a silo with the first year's growth of sweet clover and fed it to steers together with corn. During the first 30 days an average gain was made of 91 pounds per steer.

The yield of sweet clover seed is usually higher than that of any other clover, being from 3 to 18 bushels per acre, and may be obtained from the first, second or possibly a small yield from the third crop if the season is favorable. To obtain the best seed crop it is necessary to cut a crop of hay or clip it when 18 to 20 inches high. In handling the seed crop it can best be done by harvesting with a binder and shocking as in the case of oats. The time of cutting the seed is very important since if cut when too ripe much will be lost by shattering. A general rule is to cut it when three-fourths of the seed are black and the rest a yellow brown. The seed ripens very irregularly and some branches will be in bloom when others are ready to harvest. It should be hulled as soon as dry. The ordinary clover huller does not handle sweet clover very satisfactorily. If possible, use a thresher with a clover hulling attachment. Probably the best way, until the hullers are adapted to handling this crop, it to run the crop through an ordinary thresher, thus obtaining the unhulled seed. If it is desirable to have the seed hulled this unhulled material may be run through an ordinary huller. This will give the seed in good shape.

Sweet Clover as a Soil Renovating Crop.

As a crop for soil improvement sweet clover promises to become of great value especially in our systems of grain and mixed farming and possibly in the live stock system. It has this advantage over alfalfa that it works well into systems of rotation and would be turned under with a clear conscience. With the exception of alfalfa it is the deepest rooting crop grown, the tap roots penetrating to a depth of 3 to 5 feet. This makes it especially valuable as a subsoiler. The root development takes place largely during the first season. The growth of top during the first year is not usually very large, probably not much larger than the total root development during the same time.

The growth of top during the second year is one feature that makes it such an excellent crop for soil improvement. One of the most important problems in soil management is maintaining the supply of nitrogenous organic matter to provide nitrogen for the crop and humus for keeping the soil in good tilth. Sweet clover provides an abundance of both.

The following table gives the results of some investigations of sweet clover at the Illinois Agricultural Experiment Station:

Illinois Investigations of Sweet Clover (M. Alba).

PARTS OF PLANT	DEPTH (Inches)	DRY MATTER PER ACRE		NITROGEN PER ACRE	
		Pounds.	Per Cent of Total.	Pounds.	Per Cent of Total.
Tops harvested	.....	9029	....	174	....
Surface residue	.....	1338	....	23	....
Total tops	.....	10367	81	197	86
Large surface roots	0 to 7	1568	....	17	....
Small surface roots	0 to 7	241	....	5	....
Total surface roots	0 to 7	1809	14	22	10
Subsurface roots	7 to 20	601	5	9	4
Total roots	.....	2410	19	31	14
Total tops and roots	.....	12777	100	228	100

Table from Doctor Hopkins' "Soil Fertility and Permanent Agriculture."

The total yield in the above is 6.4 tons of dry matter per acre, of which the roots from 1.2 tons per acre, or less than one-fifth of the total. It is important to note that the tops are nearly as rich in nitrogen as red clover (40 pounds per ton) while the roots contain only about 26 pounds of introgen per ton, or tops and roots contain respectively 86 and 14 per cent of the total nitrogen of the entire plant. The above indicates that sweet clover may be made a very valuable crop for soil improvement if properly managed. A large part of the crop should be turned back into the soil. If the entire crop is removed not only will no nitrogen be added to the soil, but since the plant takes approximately one-third or 33 per cent of its nitrogen from the ordinary brown silt loan soil, as determined by another experiment, the nitrogen content of this soil would actually be reduced.

At the Wyoming Experiment Station in 1905 two plots produced from two cuttings about 4.5 tons of hay per acre; from two other plots 3.75 tons were secured.

During the present year with a deficiency of 8.3 inches of rainfall from March 1 to September 1, the sweet clover produced on my own farm an average yield of organic matter of 3.6 tons per acre.

The above yields will give some idea of the value of this plant for adding organic matter and nitrogen to the soil. This will undoubtedly be its primary function in our systems of agriculture. If a secondary use can be made of it for hay and pasture so much the better. If, however, everything is removed, sweet clover in the hands of a selfish farmer may become one of the worst soil robbers.

Very few definite experiments have been published that give the actual value of sweet clover in increased yields of succeeding crops. The following yields were obtained near Tost, Germany, as given in Ohio Experiment Station Bulletin 244. Sweet clover was seeded in May and turned under the next year as a green manure.

Soil Treatment.	Oats per acre bushels	Potatoes per acre bushels
No green manure.....	34.3	123.6
Green manure	51.4	258.9

The question is often asked regarding the difficulty of plowing sweet clover ground as compared to alfalfa sod. The plowing is very difficult the first season but if left until the crop is mature the roots soon begin to decay and may then be cut readily with the plowshare. The decay of these roots leaves the soil in fine physical condition.

Drouth Resistance.

Sweet clover is a better drouth resistant than any other clover. On three fields that had both red and sweet clover seeded side by side, the latter has maintained itself during the dry season of 1913 and made a good stand, while the red clover was a total failure. The same was true in 1914. It is a matter of common observation that sweet clover along the roadside will be green when blue grass in the pasture is dry. Probably no crop but alfalfa is a better drouth resistant than sweet clover.

One of the objections frequently frequently spoken of by farmers is the liability of sweet clover becoming a serious weed pest if introduced into our cultivated fields. I have no doubt that this danger has been magnified to a considerable degree. I have written to dozens of men who have grown sweet clover more or less, asking them about this very point and the answers have been unanimously in favor of sweet clover. It may do a small amount of damage to oats or wheat, but this injury will be much more than counterbalanced by the good that it does to the soil. Sweet clover must be used primarily as a soil improver, and when farmers are growing this, as they will in the near future, the price of clover seed will be reduced to the point where land owners will not hesitate to furnish the seed.

A member—You spoke about the time of seeding—that it varied with the nurse crop and that the early spring is the best time. Would it not be better to sow it earlier, in the winter?

Mr. Mosier—Yes, January, February or early March. If it is left in the soil you will get better germination than if you wait to seed it late.

We are surprised frequently that sweet clover will grow in the roadside but not in the field; there is reason for it. Vehicles have gone by there and have carried the seed and infected the soil all along the road—but over in the field there has been nothing to carry it there, unless water; in bottom

lands and regions where there is an overflow, sweet clover requires no inoculation.

Sweet clover requires the presence of certain bacteria in the soil to produce satisfactory results.

A member—This bacteria will live in the dust of the road?

Mr. Mosier—Yes, to a certain extent this organism is distributed pretty generally along the roadsides with the mud carried on vehicles and as I said before on bottom lands by floods.

Along the roadsides sweet clover will grow out in the field some little distance without inoculation; take a field of 40 acres; it may be inoculated near the road but not in the center.

I want to say something a little further in regard to the sweet clover crop. The average farmer has been so prejudiced against sweet clover that he can't see very much in raising a crop of sweet clover. This last fall, in Will County, there was a man who thrashed over thirteen bushels per acre of sweet clover seed; another man I know of thrashed 8¼ bushels. The man who had 13 bushels per acre received $205, selling it at 25 cents a pound—and that is not all; early in the season he cut a crop of hay, two tons to the acre, and that hay is worth, he says, $12 per ton. I don't know of any crop that will produce prices like that.

I want to see sweet clover grown so that the price of seed will be reduced to $5 a bushel, so that every farmer or land owner can afford to buy it and put it in his soil.

In speaking further of the root development of sweet clover, which takes place largely during the first season and is especially valuable as a subsoiler: Last fall on my own farm I took a spade and went into the sweet clover field and dug around a block of soil probably 14 inches across, then I got the spade under one side and pried it up, and the roots of sweet clover I pulled up went down some of them 30 inches, then they had broken off and were nearly as large as a lead pencil; they undoubtedly went down 2 feet further; a plant that will loosen up the soil to that depth is going to be of great value to our soil.

Pres. Baxter—You spoke of the results of some investigation of sweet clover at the Illinois Agricultural Experiment Station—Have there been other experiments conducted by Experiment Stations?

Mr. Mosier—Yes, with the same result.

Mr. Stone—Last spring we sowed sweet clover with our oats and red clover also, and there is not a bit of red clover left now and about half as much sweet clover as would make a good stand. We put two tons of limestone on the soil to the acre and inoculated the soil; we don't like to plow that sweet clover up until we get the benefit of the lime. What would you do about it?

Mr. Mosier—I would leave it.

Mr. Stone—Would you sow red clover with it?

Mr. Mosier—Well, if you want to get a growth of something else it might be well to sow red clover; I think you will find it will spread out so that red clover will not have a ghost of a chance. I think they will grow up thicker really than you expect them to.

Mr. Stone—Would some of the seed lie there and come up in the spring?

Mr. Mosier—It might. In last year's seeding on my own farm I had what looked like only a partial stand; I had several of my acquaintances at the University come down and look at it and they decided it would have to be plowed up; that it would not make a stand.

I wanted to leave it if possible and I left it and it came out and made a splendid stand, and that is where I got the 4.4 tons per acre on the low ground, and on the high ground, 2.8; it averaged 6.8 tons of growth per acre this summer, and that on an area that looked as though it would only be a partial stand.

Mr. Mosier (to Mr. Stone): I would rather sow sweet clover in there than red clover; you could sow it in there this winter some time; it will come up next spring; of course that will not produce seed next spring.

Mr. Stone—That which is in there now will?

Mr. Mosier—That which is in there now will.

Mr. Mosier—There is one thing I didn't speak of in this paper in regard to sweet clover, and that is, its advantage over alfalfa in that it does not bloat animals when they eat it.

Pres. Baxter—Is it not a better pasture for hogs?

Mr. Mosier—The Iowa Experiment Station says the first year sweet clover is almost as good as alfalfa. On Mr. Cloverdale's farm I saw 150 as fine hogs as I have ever seen and they were pastured entirely on sweet clover pasture, a little bit blue grass was in some of the gullies down there where the clover had been started.

Mr. Moore—That bitter element in the sweet clover, it has been supposed that was cumerin.

Mr. Cloverdale, in his talk at Mt. Pleasant, Iowa, last July said that the U. S. scientists had analyzed sweet clover and found it contained 5 per cent more protein than alfalfa did—but it seems they have not analyzed this bitter element to know what it is.

Mr. Stone—Mr. Cloverdale said that that element that was in sweet clover that made it bitter had been used by physicians to allay colic in the human stomach, and that that was evidence it would not bloat anything.

Mr. Mosier—The analyses vary quite a good deal as to the amount of nitrogen that is present in sweet clover because of the different periods when the samples were taken. In young sweet clover there is very little, while there is a larger proportion of nitrogen later on. Analysis made after the sweet clover had reached its maximum growth showed that there is about 1.9 per cent or 2 per cent of nitrogen in sweet clover; that would be about 40 pounds per ton, and that is just about the same as the red clover. Of course that is an important thing when we look at sweet clover from the soil standpoint—the nitrogen that it contains—to keep the soil in good physical condition; we want something that will add organic matter and keep our soil in good physical condition. The question of organic matter is going to be one of the most important problems. Many farms in the east have been abandoned because of the loss of organic matter in the soils and in many instances where those soils have organic matter put back into them they become productive again.

Mr. Moore—Mr. Cloverdale thinks he has made quite a difference in his sweet clover through selection; the leaves are larger than alfalfa; they make a richer morsel, both as forage and hay.

Mr. Stone—Most sweet clover has a leaf larger than alfalfa.

Mr. Moore—The leaf is larger and not as heavy stems.

Mr. Mosier—That is one objection to sweet clover—the size of the stem; it is liable to get woody.

At the University we are now carrying experiments in sweet clover and classifying them under different types; we have one form of sweet clover that will spread all over the ground, a white blossom that will make a little upward growth; others that will grow up a single stem; and others that will grow up with a number of stems, and of course that is the thing we desire; something that will have a small stem or stock is desirable, and at the same time produce an abundance of seed; of course the bee-keeper wants an abundance of bloom.

Mr. Stone—That difference in the size of the stem—was that caused by failure to inoculate?

Mr. Mosier—No. I think not.

Mr. Stone—I tried it with alfalfa when we did not inoculate; it grew puny and fine stemmed but soon died out.

Mr. Mosier—The difference is in the habit of the plant. The man who is carrying on the experiments has a couple of rows that are probably as long as this room; in those rows you will see plants of all kinds of habits; some will spread on the ground and make no upward growth; others will make an upward growth; he is trying to select those plants that have desirable habits, not those that grow on the ground or by a single stem, but those that will grow up from a number of stems.

Alfalfa plants differ in their habits almost as much as sweet clover does.

In these experiments he is making he has rows that are from three to four feet apart; there is no crowding of rows; the rows do not crowd each other, so that it is undoubtedly due to the habit of the plant.

Mr. Stone—You know the nature of pepper grass; we had a field of alfalfa two years ago and the first cutting in the spring was nothing but pepper grass; I supposed it was due to lime not getting in the soil. The second cutting was fine, clean hay.

A member—Where the soil shows no acidity lime is not necessary.

Mr. Mosier—We use the blue litmus test. The blue litmus test will indicate if there is acid present in the soil. The hydro-chloric acid test will indicate whether there is limestone present in the soil.

There ought to be limestone in the soil for sweet clover to grow—and alfalfa. Sweet clover will grow on soil that is too acid for red clover provided there is limestone down in the subsoil a short distance. With sweet clover, if it can get its roots down into the limestone even if the surface soil is acid it is going to survive.

A member—What about the soil that is overflown by river fed by springs that come from the hillside?

Mr. Mosier—The chances are sweet clover will not grow; there are exceptions. In southern Illinois the bottom land would be so sour sweet clover would not grow; in central and northern Illinois that is not true. The overflow lands have as a rule much more limestone in them and have plenty of germs necessary for the growth of sweet clover.

Mr. Bowen—I saw a field put in this fall, of alfalfa; they inoculated first; I made a test of the soil and found no acid there and took it for granted lime was not necessary; the result is they have a very fine stand of alfalfa.

Mr Mosier—Alfalfa has been thought a crop that was difficult to start; a few years ago the Experiment Station would recommend that the ground be plowed up in the spring and kept cultivated until August and then seed alfalfa, putting limestone on and inoculation in the meantime. Now we are finding out that alfalfa will start on oats and wheat more readily when seeded in the spring than red clover and just as readily as sweet clover.

I saw this fall at least 100 acres of alfalfa that was started in the oats for last spring, and every field that I saw was a splendid stand; I saw other fields that were started later in the fall that were much poorer than those that were seeded with oats in the spring.

On my own farm this past spring I seeded a small area in alfalfa with the idea of just carrying it on as an experiment; seeded it in oats and the oats yielded 58 bushels to the acre, and I have not seen a finer stand of alfalfa anywhere than this, and in spite of the fact that we had a deficiency of 8.3 of rainfall from March until September.

Mr. C. S. Bennett—Would that be all right in the states of Colorado or Kansas?

Mr. Mosier—Anywhere, it seems to me, where there are drouth conditions; sweet clover would stand the drouth; alfalfa in the western states is more desirable than sweet clover; they can make more money out of alfalfa in the western states than sweet clover. In parts of Kansas they are using a great deal of sweet clover.

Pres. Baxter—In the uplands of Kansas where alfalfa does not grow so readily they are beginning to use sweet clover, profitably.

Mr. Mosier—I certainly have enjoyed this meeting here and I hope you have gotten something out of my paper.

Mr. Stone—Didn't you say, Mr. President, your cows did not like alfalfa?

Pres. Baxter—Yes; they will eat sweet clover; I have had sweet clover on my place for over thirty-five years and they have been brought up with it. I have tried to spread it as much as I could. I am a member of the city council and have been for 30 years, and they have been accusing me of spreading sweet clover.

Mr. Bennett—I have a number of horses I fed sweet clover—one horse died; I don't know whether sweet clover killed it or not.

Pres. Baxter—I have a cousin who fed his horses alfalfa and he lost two of them last week.

Mr. Stone—There is more danger from alfalfa than from sweet clover. That has been our experience.

Mr. Mosier—A horse will over-eat.

Mr. Stone—One extremely dry year when we cut a lot of sweet clover we gave it to some of our cattle, steers, and they grew right along and did as well as on a blue grass pasture.

Pres. Baxter—Another thing about sweet clover, that is for hay—you can cut it and let it lie on the ground a couple of days, then rake it up and leave it there and, no matter how hard it rains, you can take off the top and when you are ready to take in the rest of it it will be green down to the bottom, while with alfalfa you could not do that—the rain will go to the bottom

of the shock. This is a great advantage with sweet clover in this climate.

Pres. Baxter—The next number on the program will be the address of Hon. N. E. France of Platteville, Wis.

Mr. France is not here. Mr. Moore will read his paper.

SHORT CUTS IN BEE-KEEPING.

By short cuts we expect some shorter or better ways in bee-keeping. I will simply give you what to me are "Short Cuts" that save work and expense.

1. System. Have a plan well studied out—then work to the same. So few seem to have system that I consider it of great importance.

2. Young Italian Queens, home grown or from best breeders, means less swarming, much stronger swarms, more honey, more late hatched bees for winter, more early spring brood, and last, but not least, one of the best treatments for European Foul Brood.

3. A bicycle wheelbarrow to use in carrying supers of honey, or combs; also the ideal way to carry hives of bees into and out of the cellar. The dash of barrow to be at right angles with floor of same, so that no upper hive or super will slip ahead while wheeling.

4. Hives in apiary in rows with the alleys easily reached from beehouse. Apiary on slightly sloping ground, preferably towards southeast. Beehouse below apiary for easy wheeling.

5. Hives in sunshine with shade board cover during hot weather will produce for me more bees and surplus honey and less cross bees.

6. Bee cellars with abundance of inlet and outlet for fresh air. I use 80 feet of six inch tile coming in under cellar wall for inlet and a foot square box tube from bottom of cellar to roof of house above for outlet.

A hinged door in outlet near ceiling of cellar to open if at any time the cellar gets too warm. Cellar walls should be all underground, thus avoiding outside weather to affect inside temperature.

7. Do not pack absorbents between cellar joists. It will soon "dry rot" the joists. Better have dead air space and packing over floor above.

8. I use common tallow candle in box 4 x 4 x 12 inches. Box open on one side; handle at top. With this light only where wanted I can remain in the cellar any length of time and not disturb the bees.

9. Bees go into cellar next day after a fly the last of November and out in spring just before maple bloom opens. Removing them during evening.

By using a little smoke in cellar, in putting bees in for winter or removing in spring, they will remain in hives and not bother.

10. Outside wintering on summer stands. (I so wintered 500 colonies for 40 years). Just above the cluster of bees should be a super with good absorbent of moisture (not sawdust) but forest leaves or chaff or cloth.

Either chaff hives or hives well protected, but not with black paper.

11. All honey removed with escape boards. Said boards on upper side have wooden guides leading the bees to the opening of escape.

12. I have exchanged all my zinc queen excluders for modern wood and wire. They save the bees' wings and let bees through much easier. I have tested hives with and without excluders side by side and in every case the one with excluder same season paid for same over one without excluder.

13 One steam heated uncapping knife will easily do work of five others. Many, however, do not use enough steam for best results. Common oil stove, gallon can over same, with three feet hose tubing, constitutes my outfit.

14. Brood combs in fall likely to contain overload of pollen. Lifting or weighing of hive will not tell amount of pollen or honey for winter. A careful inspection of combs is necessary.

15. Cappings should be well broken up and placed over tinned wire cloth onefourth inch mesh to drain out the honey in them.

16. Full sheets brood foundation in wired frames. The foundation then lightly painted with melted wax prevents sagging. Insures quicker made full comb. It also prevents so many drones and less swarming.

17. I use inch wooden strips on ends of hive bodies for handles. Much easier to handle such hives than with sawkerf cut out like factory make.

18. Wormy combs saved by placing combs in tight room or empty hive bodies—then fumigating same with sulphur or carbon bisulphide.

19. Combs stored away for long time can be saved by placing combs in

tight hive bodies and moth balls between combs.

20. In melting old combs I use soft water in large copper boiler. When melted, the wax and slumgum is pressed with Hatch Root press and wax is drawn into five gallon tin cans to cool. Some hot water below wax in can with top of can removed. Cooled wax easily removed.

21. All honey well graded. Net weight marked on each package. Every new customer gets free a Honey Cook Book. I keep list of customers and at close of harvest notify customers, with prices. By this system I never had enough for demand.

22. Last but not least: It is a pleasure to me now to produce extracted honey. Several out apiaries. A beehouse over bee cellar at each apiary. All hives and supplies for same remain in the apiary. During extracting days we need but few hands. Extract all honey in a day from 75 to 85 colonies. Home with the honey for supper. Another apiary next day. The escape boards being placed day before extracting, so that the bees are out of the supers on arrival and in few moments after arrival the wheelbarrow with two hive bodies of 10 L frames well sealed arrives in the beehouse by side of boy uncapping combs. These are exchanged for two hive bodies of extracted combs to exchange in apiary for more full ones. The one steam knife uncaps easily all combs while one six (6) frame extractor does the rest. Open faucet on extractor so the honey while warm from the hives runs through tin tube in floor to strainer and storage tank below. No more watching faucets or honey spills—no use for honey pump.

At close of day one boy quickly draws strained honey into ten (10) gallon milk cans to be loaded in wagon for home. I also have a tin trough under cappings which conducts that honey in the same tanks below.

Many of my "SHORT CUTS" are just as helpful to you, Brother. Try them.

Yours truly,

N. E. FRANCE.

Pres. Baxter—The paper is open for discussion.

Mr. Kildow—I wish that Mr. France were here to give us this talk personally. I heard him at the Rockford meeting this fall; he could bring out so much if he could be here himself.

Mr. Moore—One thing, on the second point here—"Young Italian Queens." I think too many of us are inclined to run along the easy way and let the bees attend to the superseding. I think if we will all practice re-queening and not let a queen over two years old in our apiaries, we would get more honey.

That is one point in the treatment of foul brood—the re-queening; in this way we can keep down foul brood. I believe if we would do this we would get better results.

Then there is another point: Mr. France states that "Hives in the sunshine with shade board cover during hot weather will produce more bees and surplus honey and less cross bees."

I have found in my apiary work that so many of the smaller bee-keepers think they should give their bees as much shade as possible, and many have them under a dense shade, under a big apple tree, so that they will get as little sunshine as possible; they seem to be afraid the combs will melt down if placed in the sunshine.

I have had my bees in both places. I set my bees right out in the sun away from any shade whatever; if the sun is too hot, put shade boards on, give them plenty of ventilation. I want them to get the full benefit of the morning sun, and the late afternoon sun.

Mr. Turner—How do you manage for yourself—Do you have an umbrella?

Mr. Moore—I can stand it.

Mr. Kildow—I don't know how many bees Mr. Moore has; if he had a yard the same size as mine he would guard shy of the sun business.

I have kept my bees in and out of the sun and cannot see any difference in them; those in the thick shade make as much honey for me; I want a little bit of shade. I don't want to work with a hive with the mercury at 110. I want partial shade; I do not want dense shade or blazing sunshine.

Pres. Baxter—Had we not better take up these subjects, one by one? This shade business has come up—Has any one else anything to say in regard to having shade or sunshine for bees?

Mr. Coppin—I prefer shade for the bees as well as for myself.

Pres. Baxter—How much of it?

Mr. Coppin—I keep my bees under grape vines; that does not furnish very dense shade; it doesn't furnish any shade at all to amount to anything until the weather gets very hot; the grapes do not leaf out very early in the season and when the grapes are in full foliage it is in the hot summer and I find it convenient to get under there and work; much more pleasant than out in the hot sun, and I have found just as good results under that shade as out in the sun.

Mr. Bowen—Brother Coppin's bees may be all right in the shade for him—the question is not what a man can do, but it is what the bees will do; if he can get more honey outside the shade, that is where he wants the bees.

I like shade along about noon, and the balance of the day have the bees get the sun, unless it is too hot. This year in my main apiary my bees were in the shade and I didn't see that they did any better than out in the sun; my best hive was right in the shade; and another one didn't have any shade. I do more work with those in the shade than out in the sun; it is more pleasant, as far as that goes. I think if you give bees plenty of ventilation they will take care of the shade part.

So far as I have noticed I cannot see that there is any special difference between having them in the shade or in the sun, if you do not have the shade too dense; have them where they will get shade part of the day and part of the day be in the sun. A hive I had in the sun most of the time this year gave 165 lbs. from the 17th day of July until the close of the season—so I think the shade question is a matter that does not cut much figure.

Mr. Kildow—Take the time of heavy flow, basswood or honeydew, it does not make much difference whether the hive is in the shade or the sunshine; the bees will be out before daylight, and it does not make a particle of difference with them; they will go after the stuff if it is in the field.

Pres. Baxter—It has been my experience—after pretty nearly 37 years—I like a little shade and where the bees can have sunshine early in the morning and probably towards evening; if they are shaded just a little bit the hottest part of the day it is all right. I keep bees for the crop they will produce, and I don't care for myself if I can get the results. I have noticed time and again that where you have bees in dense shade they will not produce nearly as much honey as when you have them in the open sunshine.

I have one apiary that is right out in the sun, not a tree around. I fed that apiary an average of 2 cans of honey this fall to winter them over until next May. I have another one home in dense shade and gave them an average of 8 cans; local conditions being just about the same. It is the same as in some of my other apiaries; in seasons where I have my largest crop, those that have dense shade will begin to work considerably later in the day in the springtime and in the fall, especially in the fall, than those in the sun.

There are many other advantages in taking care of them—taking off frames. Those that are in the shade are cool and you cannot touch them until a certain time of day, while those in the sun, as soon as the sun is up you can get to work.

About the first of October there are certain changes in temperature. Give me a little shade in preference to none at all, but don't give me too much shade. The whole season through is what we must figure on.

Mr. Kelley—I never thought I had time to bother with bees until lately. The bees get about like I do; they hang around the hive. This year I have had a swarm; along about the middle of the day they were hanging on the outside; sometimes I thought they were going to swarm, but I didn't think they would, a season like this. I came to the conclusion the heat was too great for them—that there were too many bees in the hive and they could not stand the heat.

Of course I am glad this subject has come up here; I may be shown wherein I am wrong. I think that very nearly all the bees in the hive came out and sometimes they would fly around in the air and light again; it was not because they were going to swarm; the only reason I could see was because they were too hot.

I shaded my bees some after that because I thought they were in misery with the heat.

Pres. Baxter—I have seen bees hang out just as bad in the shade as in the hottest sun; it is only a question of management. If you had raised up your hive and given them the proper

amount of air you would not have had them hang out. A prosperous bee-keeper must see that his bees are in the right condition at all times and he must make them so.

Mr. Coppin—You have to have a certain temperature or the bees will not hatch; if you do not assist the bees by raising the hive and giving them ventilation, and the weather gets very hot and they are exposed to the sun, they have got to get out to reduce the temperature; they have to regulate the temperature or the young bees won't hatch.

Mr. Bowen—I think there are one or two things wrong with this gentleman's bees—not ventilation enough, or not enough nectar.

Pres. Baxter—Lack of nectar would not make them stay out.

Mr. Bowen—When there is no nectar, there is bound to be loitering, and when loiterers are there there is no room for them.

Pres. Baxter—I never saw a hive yet where there was not room enough for the bees where the bee-keeper knew his business.

Mr. King—I had bees propped up 2 inches or so this summer, where no honey was coming in, in the real hot weather they were standing out on the outside of the hives.

Mr. Bowen—The bees didn't understand their business, then.

Mr. King—I had supers on and they were not working in the supers.

Pres. Baxter—That does not matter; there may have been a dense colony of bees.

Mr. Stone—I think in such a case as that he ought to divide his swarm.

Mr. Coppin—Where there are so many bees clustered all around the hive it is very often at a time when there is not much in the field. A lady stated to me one day that she had been having trouble with her husband because he accused her of letting the bees swarm. She said to him—"It seems to me I have been watching them all day and I have not seen them swarm." Because he saw the bees clustered on the outside of the hives he accused her of letting the bees swarm. I told her to tell him—"The flow of honey has come and the bees have all gone to work." Mine were in the same fix; the hives were all covered and they had not swarmed.

Pres. Baxter—This year we have not had any honey. There was a time when I could go out in my apiary at home even in the dense shade and find every hive was clustered on the outside, and I experimented by giving these hives more air; gave them ventilation. Those that I tried that way, inside of an hour you could hardly see a bee around, while those that were treated in this way were clustered on the outside as before.

Mr. Moore—The next topic—"A bicycle wheelbarrow to use in carrying supers of honey or combs; also the ideal way to carry hives of bees into and out of the cellar."

I don't know what the idea is, unless it is pneumatic.

Mr. Stone—Do you suppose it is a wheelbarrow with two wheels.

Mr. Moore—That would not be a wheelbarrow; that would be a cart.

Mr. Moore—I think, from what I have heard, this bicycle wheelbarrow has a pneumatic tire.

Mr. Coppin—Would not a spring wheelbarrow be as good?

Mr. Moore—That is the kind I use and have had very good success with it; an ordinary wheelbarrow is too small and too low; it pitches ahead too much. It should be at right angles with the floor and so arranged that when you lift the handles the floor will be very nearly level. It would be better to have as little pitch as possible.

In putting on a bicycle wheel it would bring it up considerably higher than the ordinary wheelbarrow.

Pres. Baxter—I don't think that makes much difference. I have a wheelbarrow I have used for 30 years and never had any trouble.

Mr. Moore—You say you never used anything else?

Pres. Baxter—I don't believe I would have had a drop more honey.

Mr. Moore—You don't know what a convenience it would be to use another kind.

His idea of "apiary in rows with the alleys easily reached from beehouse. Apiary on slightly sloping ground, preferably towards southeast. Beehouse below apiary for easy wheeling."

If your ground is sloping, have apiary slope up from beehouse with rows leading down to honey house.

Mr. Coppin—If you have bees on lower ground that would be an advantage to the bees.

Mr. Moore—We are all working for what is easier for us.

Mr. Moore—"(6) Bee cellars with abundance of inlet for fresh air."

Has any one any ideas on wintering in the cellar?

Mr. Moore—This idea of "using a common tallow candle in a box for light in the cellar"—

Mr. Stone—That is a pretty good scheme; Mr. France has the box open on the side with handle at top and can get the light wherever wanted.

Mr. Moore—It does not make a very intense light, a tallow candle in a box, but it would throw the light where you wanted it, while with an ordinary dark lantern there is quite a strong light and it would disturb the bees more or less, I presume.

In regard to putting bees into the cellar by using a little smoke in the cellar in putting the bees in for the winter or removing in spring—Any one anything on that?

Mr. Coppin—I don't like to use smoke myself for putting bees in the cellar. I like to pick them up as easily as I can and not disturb them; carry them in without disturbing them if possible. If I have to take anything I generally take a bucket of cold water—throw it up against the entrance, and, if any of them want to come out, they go back again. I don't object to using smoke in taking them out.

Mr. Moore—When I have wintered in the cellar as I have several seasons, I make it a point to take them out in the evening after dark. In the daytime if you open up the cellar you will have more or less trouble from flying, and by moving them out after dark you don't disturb the bees.

You can carry out a hive at a time and there will be no flying and they will be quiet until the next morning. If they are set out quietly on stands at night they will take a very gentle flight the next day.

Pres. Baxter—If you have a good many of them, of course you could not wait until night.

Mr. Moore—Have any of you used sawdust in packing outside? I have used dried leaves.

Mr. Bennett—Is there any objection to ground cork?

Mr. Moore—I don't believe ground cork would absorb the moisture. It is good packing for around the hives as a non-conductor of heat, but I am afraid over the cluster it would not absorb the moisture.

Mr. Coppin—It would depend a good deal on what you have over the bees—whether you had cloth or board.

Mr. Moore—Anything that would be a non-conductor would do for packing.

Pres. Baxter—For how many years have I been advocating upward ventilation for winter protection?—Taking off the honey board and putting on a mat of slough grass or something of that nature, and then packing above that with dried leaves or something that will allow the vapor to escape or to absorb the moisture; have a hole in the back of your super or whatever you have so that the air could escape.

I have taken them off in the spring where there was no such hole and they were so wet—I see that the tendency is drifting that way very rapidly. A few winters like the winter before last would give one experience along this line.

Mr. Bowen—I seldom lose a hive of bees in the winter; there is nothing better than dead air as a non-conductor. If you allow your cover to be sufficiently high over your frame so that there will be a circulation you never will have your bees freeze. I put on an extra board with cloth all tied down to make it air tight, but leave it up high enough that I have a good circulation there all the time, and you will never have one freeze to death; if you give them sufficient honey, to live on.

Pres. Baxter—You remember the terrible winter of 1884-5. I have been wintering bees for 38 years and my losses during 1884-5 were only among those that were not packed according to my method, or rather the Dadant method; and out of sixty hives we lost all but 12 of those that had the sealed covers. I lost but 5 per cent where the sealed cover was taken off and replaced by a mat capping filled with leaves. In 1912 I had an apiary of 80 colonies six miles east of town. I had mats for all colonies, and went out to pack the bees, with a big load of leaves. I found I had 12 unpacked with leaves when I got through with the lot I had. I was short 11 mats. I took the cloth off of one and put a mat over that one colony and left the other 11 with sealed covers. These 11 with sealed covers were dead in the spring and the one with the mat on top the frame was alive, and nearly all those that were packed with leaves

were alive. Those with no leaves and sealed covers were all gone.

I did not believe in this way, but I had accepted a school that fall (1884-5) and the man with whom I had made a contract to pack did not come, so that some of my apiaries were not packed. In the middle of winter when I examined my hives I found a sheet of ice had covered the honey and the bees had actually starved to death because they could not get the stores. The stores could be easily reached by those that were packed with leaves and they were as dry and nice as could be. A space had been left so that the bees could go over from one frame to the other when they came to the top, and the stores could be easily gotten in the coldest weather. Not more than 2 per cent should be lost in wintering out of doors if you have a good colony of bees and good honey.

Mr. Stone—When brother Bowen said what he did—I thought he struck the key note. I believe that air space is necessary; it doesn't make any difference whether there is anything in that space or not. The bigger space you give, the less chance you will have for moisture that occurs in the hive. I do not believe there would ever be any ice there if you left the whole bottom open.

By being stopped up so tight, the bees get hot in there, and it being cool outside is what causes the moisture.

I have wintered out of doors for 10 years. Two years ago when we had such a hard winter I lost 80 per cent of my bees and those that were saved did not have any mats on; it was my mistake, leaing the mats off. I left the case of extracting frames on the light ones for fear of want of honey, and they all came through all right; and those that did not have all this dead air space died, with plenty of honey outside the clusters.

Mr. Bowen—And that is the year that you lost nearly all of yours and I lost none.

Mr. Bowen—Your assertion may be all right but I am telling what my practical experience has been; of course my hive is air tight, but it has plenty of good circulation. If you have studied the matter of circulation, we know we have got to have a chance for the hot air to escape or the cool air will not come in. If you lay that cover down tight on the frames, it will not do when it comes cold weather and the ice forms, but this other way, where you have the board lifted, you have a chance for cross ventilation; your bees will have plenty of air and will pull through all right.

Mr. Stone—May I ask for a question of privilege for a few minutes? Mr. Bell represents the Legislative Reference Bureau. The law has been changed so that our appropriation that we are going to ask for next winter will not go in the Bill as it has been going. Mr. Bell is here and will explain the new law if you will give him the floor.

Mr. Bell, Secretary of the Legislative Reference Bureau:

Mr. Bell—Mr. President, Ladies and Gentlemen:

Twenty-four or twenty-five Associations are obtaining money in the Biennial Appropriation from the State of Illinois, including the Bee-Keepers' Association. Last June the Assembly saw fit in its wisdom to create in this state what is known as the Legislative Reference Bureau.

How does it affect your organization? It may affect it if you so elect. The functions of the Bureau are four, mainly.

We collect material from all over the nation; we often extend our research to Europe in matters that affect legislation, political economy and sociology. We gather material from newspapers. We follow the meeting of the Assembly and get reports of Bee-Keepers' Associations; we as an Association take interest in eevrything that the members of the Legislature may want information on. We gather information from the Universities and from every conceivable source so that the members of the Legislature may know what is going on.

If there is some measure that has been enacted in some other state that is beneficial to Bee-Keepers, if you would wish such measure adopted in this state and you would come to some member of the General Assembly he would have to write to other states.

Our purpose is to have that information for them so that when they come here they can get the information; it is already prepared and on hand for their information.

We anticipate legislation and have data on hand in Springfield for that. We are not the Library but we work very close with the Library. We index material in the Library. We index

questions of insanity or taking care of the indigents of the states; we examine books of authority and can adivse any one on these different subjects.

We have only been established about a year.

Our second function: During the time the Session is on we record the procedure in both Houses so that every member of both Houses will know just what is going on in both Houses.

The next thing we do is to draw the budget.

Our fourth function: We draft Bills on request of members.

To go back to the third function: The Budget—

As the several departments of the state are supposed to report to the Legislative Reference Bureau by the first of November the amounts that are required for their Departments for the next Biennial Appropriation—we tabulate that information, prepare it according to classification, so that we can tell how much is spent for salaries, wages and supplies, et cetera—

The States of New York, Ohio and Minnesota and the cities of Minneapolis and Chicago have adopted this Budget System.

It is nothing more nor less than to put the Legislature and the public in touch with the fiscal need of the state and put them in touch with it in advance of the session.

As you understand, your appropriation that you formerly obtained from the state was included in the Omnibus Bill. I don't know that the Bee-Keep-Keepers is a State Department or whether you will be considered as a State Department, neither do I know what procedure you should follow to get your needs before the State Assembly, but the law is that what you require should be on file.

After your deliberations here, if you so choose, you can let the Legislative Reference Bureau know about it. We would like to have information about the Bee-Keepers of the state for the General Assembly.

Mr. Kildow—I would state that, on using this slit board with me, I would want plenty of packing on top of this slit board to keep that warm, otherwise the moisture would condense on top of this board and in that way the bees would suffer for it, but, by packing the top of this board, it is all right.

Pres. Baxter—I was going to ask Mr. Bowen a question which may account for his success in this way: Are your hives double walled hives?

Mr. Bowen—No, sir.

Pres. Baxter—Mine are double walled hives; there is no chance for the air to escape except up above and down through the entrance; in the single walled hives, there would be left enough space for moisture and for the air to escape to keep the hive dry; that has a great deal to do in the two different cases.

Mr. Moore—The next thing is in regard to escape boards for taking off honey—

Pres. Baxter—Has anybody tried them?

Mr Moore—I think myself that if anyone has ever tried to take off honey with the use of the escape boards they would never do without them.

Pres. Baxter—That is my idea.

Mr. Bowen—I second the motion.

Mr. Coppin—I would not recommend any one to do without the escape board unless they were so far away from home, and they wanted to get the honey in one trip and could not get the escape board; I then brush or shake the bees off the quickest way possible.

Mr. Moore—That will work out all right where you are producing extracted honey, using the frames, but in taking off the comb honey—section honey—it is almost impossible to do it with any degree of comfort without the escape boards.

Pres. Baxter—You can use the bee-escape boards for extracted honey so much easier.

Mr. Moore—Yes, but, as Mr. Coppin says—if you have an out apiary and want to get back home in a day and haven't the escape boards with you, that makes a difference whether or not you use them.

Pres. Baxter—I go out the evening before with my auto and put the escape boards on; and go out the next morning and get the honey.

Mr. Moore—That is all right if you have an auto.

Mr. Coppin—It is a little harder to get the bees off, with comb honey; I set the super on one end and take the smoker in one hand and brush in the other; smoke on one side and take the bees off with the other.

Pres. Baxter—Did you ever have any trouble with their breaking cells?

Mr. Coppin—No, they don't have

time; if you get to smoking them and give them lots of time they will puncture very badly; but if you brush them off as fast as you can get them off the other side they won't have time to puncture.

Mr. Moore—I would rather make an extra trip to an out apiary and have an escape board than to try to take them off without one. The smoking of bees enough to drive them out when they are so reluctant to leave is liable to leave a tainted taste in that honey.

In regard to the zinc queen excluders: Mr. France states that he has exchanged all his zinc queen excluders for modern wood and wire; that he has tested hives with and without excluders side by side and in every case the one with excluder the same season paid for itself over the one without the excluder.

Mr. Moore—I have used both kinds, both the zinc and the wood and wire excluders, and I would never buy another zinc excluder—the wood and wire is so much ahead of them there is no comparison.

Mr. Coppin—I am something like our President with his wheelbarrow; I had a supply of zinc and never speculated in the wood and wire.

Mr. Moore—In regard to the steam heated uncapping knife: I have never had any experience with the steam heated uncapping knife; if we had had any crop of honey this year I would have had one.

Mr. Dadant—We tried it in one apiary in 1913; it worked fine. There is no question about its being practical.

I believe in the northern districts Mr. France likes it much better than we would in the south because his nights are cooler. We don't find it of a great deal of advantage except in extracting for our fall flow; our honey gets thick and stiff and the capping sticks to the knife, but the ordinary knife for a small flow works very nicely.

Mr. Moore—In the last number of Gleanings a writer stated that in extracting he had been used to using a common butcher knife; that he tried the regular uncapping knife but could not make a success of it, and he took out his butcher knife and that worked to perfection; he used the shallow frame; he claims that he can work quicker and faster and better with the butcher knife than with the uncapping knife.

Pres. Baxter—I tried it but never succeeded.

Mr. Dadant—I believe the reason why the Bingham knife is better, is that the blade is made thinner; the new uncapping knife is not perfected; they are working on them now endeavoring to get something better; the old Bingham knife, with as thin a blade as it has, works much better.

Pres. Baxter—Our Bingham knife I bought 35 or 37 years ago; I don't believe you can improve on the Bingham knife.

Mr. Moore—The next thing he speaks of is the likelihood of the brood combs in the fall containing an overload of pollen; that the lifting or weighing of the hive will not tell the amonut of pollen or honey for winter. "A careful inspection of combs is necessary."

Mr. Baxter—There is a good deal in that.

Mr. Moore—There is lots in that.

"(15) Cappings should be well broken up and placed over tinned wire cloth one-fourth inch mesh to drain out the honey in them."

Mr. Baxter—That is the same as our uncapping cans.

Mr. Moore—"(16) Full sheets brood foundation in wired frames. The foundation then lightly painted with melted wax prevents sagging."

Mr. Moore—Have any of you ever tried strengthening foundation in this way?

Mr. Coppin—We do that at the end of the frame to keep the wire in place at the ends; we very often put a little wax, especially if we are going to haul them in the country for a ways.

Mr. Moore—Mr. France puts full sheets brood foundation in wired frames and lightly paints the foundation with melted wax. There is a California man who has a patent to prevent the foundation from sagging. He has a patent on the process of painting the foundation to prevent sagging. I tried this process of painting that wax; put in full sheets of foundation, ordinary frame without any wires in and painted both sides lightly with extra wax, put them in the hives and had them drawn out and I could not find a particle of sagging on those combs. I think it is a good wrinkle, and especially if you have wired them; it does not seem to make any difference; the bees will work that excess of wax into the shape of the

cell; it stopped all sagging—all stretching of the foundation.

Pres. Baxter—If there are no questions in the Question Box we will have a recess of a few minutes.

Pres. Baxter—(Convention called to Order) We will defer Mr. Kildow's report until tomorrow morning. We will listen to Mr. Henry Dadant.

Mr. Henry Dadant.

I had a little experience with European Foul Brood.

We found European Foul Brood in our apiary about ten miles from home.

The apiary consisted of 91 colonies, not all Italians by any means. They were all selected and no old queens—but we always selected the best, whether they were hybrids or Italians

They went into winter quarters last fall in very good shape.

We always have a fall flow. We were surprised this spring—in April—to find three badly infected cases and several others, even as early as April. In fact we were so surprised that we sent for our State Inspector, Mr. Kildow, to give us some assurance that we had something ahead of us. We secured queens as quickly as possible and went after it. There were ninety colonies; one swarm was Italian; we didn't have to touch that swarm at all. Out of 39 colonies this was the result:

Ten colonies of Italians that were not touched; they were healthy the entire season. Ten colonies of Italians were given three frames of European Foul Brood in place of healthy brood, and they turned out all right;—that is, we had some very bad cases of European Foul Brood and we wished to strengthen them. The main thing is to keep the colonies strong, as we all know in almost every case—so that gave three frames of very badly infected brood to ten colonies, and in each one of those ten colonies of strong Italians they cleaned out the foul brood and went right ahead.

There was no honey flow until the later part of the season.

There were two more cases; we did the same thing; we gave them three frames of European Foul Brood and they did not develop the disease. They were not as strong as the others; by caging the queen once they got rid of the disease.

Nineteen colonies we re-queened along in May and June before the disease reached them.

Now we re-queened all the colonies in that apiary that were not Italians, even though they seemed to be perfectly healthy. We wished afterwards we had not been so radical, but we were really scared. Perhaps some of those black or hybrids would have pulled through all right. Dr. Miller has had strong hybrids that have pulled through or by caging once have thrown off the disease.

There were fifty-one that either had the disease or took the disease by the first of July. We were not able to get at all of the apiary with queens, and a great many of them developed along in May and June before we could get to them. Out of the fifty-one that were infected with European Foul Brood, five were pure Italians and they cured themselves. They were very slight cases; perhaps some of these that were reported as having European Foul Brood at the time did not have it. But, if there was any question at all, we marked them as suspicious, but in some instances they cleaned it up all right.

Three were cured by re-queening with Italians; six were cured by giving frames of healthy brood after the caging plan had presumably failed; some cases we caged once; sometimes twice, caging the queen from 8 to 11 days. If they keep getting weaker it is no use in trying to cage the queen again. The main thing is to keep the colony strong.

There was no honey flow and it made it very difficult work re-queening. We lost lots of good queens on that job. There were three cured by caging twice, 8 to 11 days, and we lost 3 by becoming so weak that we united them with other foul brood colonies. At the end of the season we had a little flow. We obtained 1,500 lbs. from the apiary. We went into winter quarters with 3 out of 91 colonies still having the disease; two of these were really abnormal colonies; one of them had a black drone laying queen and right in the beginning of the season, in April, we gave that colony a queen taken from a European Foul Broody Colony; that is, we didn't have enough queens to go around and as we were taking some European Foul Brood out we tried introducing those queens to other colonies; in three cases we did this; in each case those colonies took the disease immediately.

Dr. Phillips — Were they hybrid queens?

Mr. Dadant—They were hybrid queens. I would like to hear from any ine else—if any one has tried introducing European Foul Broody queens to a colony, and if it would in each case give the disease to the colony.

A Member—Take an Italian queen, it will not carry it, but a hybrid or black queen is almost sure to.

Mr. Dadant—We have all colonies Italian now except those three. The other one we gave the European Foul Broody queen to was queenless at the beginning of the season and very weak the entire season; there was only one case in which the Italian colony took the disease; we finally killed that Italian queen, and it was not a normal colony by any means; it was not fairly strong, and the queen did not seem to be a good queen; her laying power was not good, and after caging her twice we killed her and re-queened; that is the only case in which the Italian queen did not throw off the disease in spite of having no honey crop except way along in September.

Our re-queening methods:

We tried one method—There was a little black queen that refused to be found after several trials, so we shook the entire colony off on the board in front of the hive and looked for her high and low and could not find her at all. She was there; there were plenty of eggs.

Mr. Stone—Did you make the bees go through the queen excluder?

Mr. Dadant—No, we didn't try that; I don't believe that would have caught her. We dropped an Italian queen on that board and had her go in with the black bees. We did it more as a joke, and then marked it on the back of the hive for the next man that would come around that apiary. We marked: "Kill her; find her first."

The next time he came round he found the Italian queen had been accepted and they bere booming right along. That is re-queening without dequeening.

There are a few points in summarizing this experience that are worth while taking note of:

Ten cases where three frames of European Foul Brood were given to strong colonies and did not suffer as a consequence.

Three cases at this apiary and one at another apiary where European Foul Broody queen, introduced by the cage method to healthy colonies, immediately transmitted the disease.

The preponderance of Italian blood of those which were untouched and cured themselves or overcame the disease.

The apparent success of the cure without almost any honey crop; conditions could not have been worse.

Mr. Heinzel—In giving these diseased colonies three frames of healthy brood, did you cage the queens with them when you gave them the brood?

Mr. Dadant—We caged the queens. We took three frames of diseased brood, giving them three frames of healthy brood.

Pres. Baxter—You have heard Mr. Dadant's experience with European Foul Brood, are there any remarks?

Mr. Dadant—Dr. Phillips, have you tried this method?

Dr. Phillips—No.

Mr. Bowen—Speaking about hunting for the queen; we usually use the sifting process for getting a queen. I had some experience with one of my hives, where we put the bees through the sifter, and found no queen; finally we discovered the thing had gone through the queen excluder like any other bee; we seldom ever fail to find the queen, using the sifter—Take the queen excluder; put on bottom of box about the size of the hive, that fits the frame; set that off one side of hive; commence to lift the frames out and put them into this box; if we don't find the queen in looking the frames over, when we take them out we shake the bees off or brush them off into this sifter, as we call it; set the frames back into the hive; then, after we get the bees into the sifter and the frames in the hive, we set the sifter on top of the hive and smoke them out and they run down into the brood frame; everything goes through the sifter excepting the queens and drones.

Pres. Baxter—We want to refer back to the "Short Cuts"; there is a point there in regard to re-queening. Will you please read that, Mr. Moore? we would like to have that point discussed.

Mr. Moore—Mr. France, in "Short Cuts", says:

"(2) Young Italian queens, home grown or from best breeders, means less swarming, much stronger swarms, more honey, more late hatched bees for winter, more early spring brood, and,

last but not least, one of the best treatments for European Foul Brood."

Pres. Baxter—The question is—How long do you keep a good queen? When you have one do you advocate re-queening every year, every two years, or watch your queen and see when she begins to fail and then supersede?

Mr. Coppin—How many are there who know how old the queens are?

Pres. Baxter—None, unless you keep a record and even then you are not sure.

Mr. Coppin—The only way they keep a record is by clipping the wings—and how many do that?

Mr. Bowen—I do.

Mr. Coppin—I don't keep a record of age; I did 25 years ago but I don't do it any more; it is quite a little work; it pays in some respects especially where there are high trees for swarms to go up in; it would save the trouble of climbing the trees or anything of that kind; at the same time I don't clip mine any more, and I don't know how old my queens are.

Mr. Bowen—The way I keep track of queens: I clip the left wing if 1 year old, and the right, if 2 years old, and I know that it is two years old if I find the queen clipped on the right wing. Then in regard to re-queening: I think sometimes it is as necessary to re-queen in six months as at another time it is in 2 years and 6 months; it depends upon the queen. If she is not fully developed and begins to scatter her brood the indications are there is something wrong with her. If you are working bees for fun, you can keep her, but if you want to make money you had better re-queen her. If I have a queen that has been doing service it goes against the grain to kill her. I know one queen that threw off 7 swarms.

It depends upon the length of the season where you are located, how long the queen will last.

Down on the Illinois bottom the bees have worked in the spring until the asters open in the fall; they have steady work and they will wear out quicker than where they only work part of the season, depending upon white clover only. You have to use your judgment as to what kind of work the queen has been doing and the condition they are in.

Mr. Baxter—That is my view of the subject. Mr. Spencer of the Spencer Apiaries in California says he re-queens every year and he is offering his queens for sale so as to make room for new queens. I don't believe in that method.

Mr. King—If you would see some of those queens that I have seen—you would not know whether they were hornets or wasps. They don't look like Italians; I got some from him and kept them only a little while until I could get other queens.

Mr. Coppin—I was going to ask the gentleman how he could tell the queen was four or five years old if he kept on clipping first one wing and the other; how many sides has the wing?

Mr. Bowen—I put the date on the hives—then I can tell. We don't want to keep them as a rule four years; if we keep them 2 years we are satisfied, but if they are doing good work we don't care very much whether they are four or six years old; we can keep track of them to a certain extent as to which wing we clip.

Mr. Kildow—I don't believe in clipping the queen the first year; you have only one thing to tell, whether you have a good strain of bees; at the end of two years I think it may be a good thing. Sometimes a queen two years old is good; and other times a young queen at four months old is a pretty old queen and you ought to do away with her pretty quick. You can run down your stock easily if you kill a queen one year old. The next year she may do better. I should not wonder that it would be a good plan to kill her at two years old.

Mr. Stone—If you buy your queens, how are you going to tell how old they are?

Mr. Baxter—You are supposed to get young queens.

Mr. Stone—This spring I went to a hive that I was sure had a young queen in it. It was one of the queens I got last spring. I thought there was something the matter there; I didn't see any bees coming out or going in the hive, and I saw nothing but drones on the platform. I examined the hive and found it full of drones; the moths had gotten into it; the queen was there but she was laying nothing but drones on the platform. I examined the hive and found it full of drones; moth had gotten into it and the queen was there but she was laying nothing but drone

eggs; she must have been an old queen or she was badly fertilized.

Pres. Baxter—Tomorrow we want to take up some discussions which I have recommended, and, for the benefit of those who are here now and didn't hear the suggestions that were made this morning, I will read a part of the President's address of this morning:

(President reads from his address.)

"There is one subject that I want to bring to your attention, which should interest every bee-keeper in Illinois and which should receive his best thought and his undivided and unselfish consideration. That is, co-operation among bee-keepers—its aim and scope, and how best can it be accomplished."

I would recommend that the matter be thoroughly discussed at this meeting.

Another question of importance to the members of the Affiliated Association is the present status of the National Bee-Keepers' Association—

"Should the National Association be re-organized to take up this work, and, if so, to what extent should this co-operation be taken up? Or should the matter of co-operation be limited to state organization exclusively? This is a deep subject of vast importance to the bee-keeping fraternity of every state, and it should be carefully studied and considered, and I would recommend that the matter be thoroughly discussed at this meeting."

Is the National fulfilling its purpose, and is it any benefit to its members as it is now organized and conducted? This should have your serious, impartial consideration, and a resolution setting forth your conclusions be adopted as a guide to the actions of the delegate you may elect to attend the meeting of the National next February in Denver, Colorado, should you see fit to elect one.

There is another thing I would like to have you take up:

Article two of our Constitution says: "The object of this Association shall be to promote the general interests of the pursuit of bee culture."

Such being the case I would recommend that your Executive Committee be empowered to make arrangements for holding from three to six field meetings next summer, including the tri-state field meet which has already been arranged for at Hamilton, Illinois, some time late in next July or early August, by the Iowa State Society, Illinois and Missouri co-operating therewith. These field meets I believe should be in charge of your President for 1915, for which services he will receive no pay more than his expenses.

These field meets should be held at such time and place as will accommodate the most bee-keepers in that section of the state, and not more than two of these meetings should be held in any one of the three Supreme Court Judicial divisions of the state.

And still another important matter is the necessity for co-operation between the various Public Industrial, Educational and Philanthropic Associations of the state in matters of general interest, and as a means to that end I would recommend that this Association name a committee to work in conjunction with committees of other associations to work with that object in view.

Now these suggestions will be discussed, with others, tomorrow, and I would like to have you be prepared to take some action upon them.

Mr. Moore—Perhaps it would be well to make a little explanation in regard to that tri-state meet talked of, to be held at Hamilton, the last of July. I happened to be down in the neighborhood of the meeting held at Mt. Pleasant, Iowa (the Iowa Bee-Keepers had a series of meetings during the summer so I ran over to Mt. Pleasant) and Mr. Pellett brought up the question of the tri-state meet—the Bee-Keepers of Illinois, Missouri and Iowa meeting at some point, and Hamilton was suggested. Mr. C. P. Dadant was there and he said if the three State Associations decided to meet there they would be very glad to welcome the Associations to the place and show them every courtesy in their power.

Mr. Pellett appointed Mr. J. W. Stone as the Iowa man to look after the affair. Mr. Baxter appointed myself and they two appointed Mr. R. A. Holacamp of St. Louis to work up the Missouri end of it—so that this question will be brought up at this meeting for discussion, and get your ideas or pointers as regards this tri-state meet; the time, particularly, should be discussed. We thought some time the later part of July or early August would be as convenient as any time we can

get during the season. We three who have this in charge will have to correspond and will probably have to go to Hamilton some time during the early summer and make arrangements for this meeting—so that we want to have as full a discussion as possible on any points that occur to you.

Mr. Stone—Mr. President, I have a letter here from the Secretary of the National; I don't know but that it is as good a time as any to read it now.

To the Affiliated Associations of Bee-Keepers:

With pleasure I greet you in your annual gathering, and, it would afford me still greater pleasure to meet with you in person, as I surely meet with you in the spirit of endeavoring to uplift our beloved vocation.

In our efforts to enlarge the sphere of usefulness of the affiliated Associations, there are conditions constantly arising that require changes in our policies so as to be able to meet the changed conditions. The policies of twenty years ago in any business are not at all competent to meet the conditions of today. Especially is this true in methods of publicity for food products, and it is to our needs in this direction that I wish to especially call your attention.

In our product we have a delicate, delicious, wholesome, cheap and nutritious food, relished alike by old and young, invalids and those in health, peculiarly valuable as a food product, and a stable delicacy not to be surpassed, yet we have seen it gradually decrease in comparative price and consumption until scarcely profitable to produce in ordinary localities. It should be selling in greater quantities at a better price.

It is our business as producing bee-keepers to "get together" in some way and remedy this condition if it is possible to do so.

As Secretary of the National Association it devolves upon me to call the attention of the affiliated bodies to this condition, that the brightest minds of this and other affiliated associations may "get together" and suggest the proper policy to remedy this condition.

I would suggest that one session, of your meeting be devoted to the consideration of this matter in the endeavor to decide on the policy to "Increase the consumption, stimulate the demand, and stiffen the price of honey."

Would it not be to the interest of the fraternity to adopt a plan by which part of the work of the Association could be discussed and passed on by the affiliated sessions? The state and local Associations are attended by the producers themselves, while the National is made up more largely of delegates and members whose income is derived from sources that do not depend on the price of honey up, or honey down, and consequently, do not feel the urgent need of action along this line as keenly as some of the rest of us do.

As it now is, the Association is hampered by lack of authority and funds to meet the changing conditions. I regret to say that your Secretary has had to turn down many opportunities that would have been of much value to the members because we had no funds available. Some way should be provided to increase the amount of revenue. Instruct your delegate as to your will in regard to these matters and let us make the National Association what it should be, a powerful and effective means of bettering the condition of the honey business.

The Review is proving a wonderful instrument of good to us, and its circulation should be greatly enlarged. It is aiding the producers in effecting a stronger organization. Efforts are being made to drop it and leave us without an official organ. Those who are clamoring for this look at matters from another viewpoint than that of the producer, and, while they are likely sincere in their views, it could be nothing short of a calamity to lose the support of such a paper as the Review, which is a paper all our own, dedicated to our exclusive interests. I would urge that every affiliated member be solicited to support the Review.

We are taking for our watchword this year "GET TOGETHER AND BOOST HONEY". We trust that your Association will excel in doing this. Many have already gotten into line and are hard at work devising plans to further this desired end. Your Secretary feels his feeble efforts to be futile except to "shake up" the boys, and get them to work. I have found some of the brightest minds I ever met among the bee-keepers, and I know that their combined efforts will better present conditions; and I will feel amply repaid for all my work to see this come about.

With the best of wishes for the success of your affiliated Association and the National, I remain,

Yours,

GEO. W. WILLIAMS,
Sec. N. B. K. A.,
Redkey, Ind.

Mr. Secretary:

In arranging the program for the National meeting at Denver, this winter, we are asking each affiliated Association to select one member to furnish a paper for the program, treating on the subject that you may select, to be read in person if possible, if not, by proxy. Will you kindly see to this personally, and arrange for this at once? Send me the name and address now, and the topic as soon as possible. G. W. W.

Mr. Becker—I move you, Mr. President, that we adjourn until tomorrow morning at nine o'clock.

Pres. Baxter—We have Mr. Gates with us, who is President of the National Association, and if he is here tomorrow we can get some information about the status of the Association; if not, why, then I want to ask some questions this evening, but Mr. Gates is on the program for tomorrow afternoon, I believe, and will also be on for this evening—is that correct, Mr. Gates?

Mr. Gates—Yes.

Pres. Baxter—Mr. Becker, I will entertain your motion—Is there a second?

Mr. King—We have some questions here.

Question—Are Golden Queens better than three or five band—Why?

Mr. Coppin—Better to look at.

Pres. Baxter—That is a pretty true answer in some respects.

Mr. Moore—I have always understood the pure Italian Queen is a three banded queen. I never had any experience with Goldens but I have heard they have bred out lots of good points in getting that extra color; I prefer the three banded Italian.

Pres. Baxter—Give me the three banded leather colored in preference to anything else; you know you have something that will work.

Mr. Stone—Some of my Goldens went through last winter better than the darker bees.

Mr. Werner—I have three as fine Goldens as you ever want to see and they made more honey than the three banded.

Mr. Gray—I got hold of some of them and got rid of them as quickly as I could. They would sting you if you went near the hive.

Question: Is the twelve frame hive better than the eight or ten frame hive?

Pres. Baxter—Let whoever has had experience with the different hives tell us which is the better.

Mr. Moore—I use a twenty frame hive.

Pres. Baxter—Piling up the supers?

Mr. Moore—Yes.

Mr. Moore—In the spring I have a hive body with ten frames; in fruit bloom if they begin to get filled up I give them another hive body with ten combs for the queen to work in. I jamb the lower hive body full of brood. I think for ordinary use (and I have had considerable experience around the country with the eight and ten frame) and for the ordinary bee-keeper, the ten frame is the best size; ten frame Langstroth size. I would not advise anybody to use a twelve frame hive; they are not standard size and you have a hard time getting the extra parts, the supers, hive bodies, frames and covers; you have to have them made to your order especially. For that reason I would not advise anyone to get an odd sized hive.

Mr. Kildow—Dr. Miller uses the eight frame hives and none of us can hold a candle to him.

Mr. Moore—I don't believe there is any of us who does the same amount of work in his apiary in manipulation that Dr. Miller does. He admits, himself, if he started with the ten frame he would have liked it better.

Mr. Kildow—Take the eight frame hive: It takes more attention than the ten frame, but I believe the eight frame, with a man who understands his business as Dr. Miller does, he will get possibly more honey than from any other.

This having the standard size—I don't think there is anything in that.

Mr. Moore—I will say in regard to this having a standard: Different manufacturers have what they call **the** standard Langstroth hive—but they vary. We thrashed that subject out pretty thoroughly at the National Convention and it was left with the Executive Committee at that time to interview the manufacturers and get them to make their hive bodies, frames and covers of the same dimensions so that they would be interchangeable.

Mr. Bowen—I don't believe in tying to any kind of hive; it would be just like in school work; you might say that books we used fifty years ago would be good enough for the schools of today. I think the moment you take

a certain hive for the bee-keeper to use you lose the individuality of it. If I want to use a hive altogether different from that which any one else is using, it is my right to make it or have it made for me; I don't think this thing of going to work and fixing up a dose for some one else to take and making you take the same dose is good practice.

I may want a 4¼x4½ section and some one else may want a 4x5 section; the manufacturers may get together and adopt a certain size and leave out the 4¼x4½—and I think it is a much prettier section. Some of the manufacturers have written to me to know why I make a 4¼x4½ section—I think that is my business.

Pres. Baxter—That is off the point entirely.

Mr. Bowen—That is part of the hive.

Pres. Baxter—That is an auxiliary part of the hive.

Mr. Bowen—I have been using a ten frame hive and in my neighborhood there was one man who had an eight frame hive and he made fun of his neighbor who had a ten frame; that same winter the man using the eight frame lost all of his bees. I am making my hive now eleven frame; that is my particular hobby, doing that; I think it is better than the ten frame even; I would not have an eight frame if you gave it to me. I think the eleven frame is still better than the eight; certain seasons the twelve is better than the eleven.

Mr. Moore—Mr. Chairman, we have all gotten off this question.

Pres. Baxter—Now, my friends, in answering these questions we ought to try and answer them to the best possible advantage. The person asking these questions asks for information; they may not be bee-keepers but are going into the bee business. They want the experience of some who have made a study of these questions. We should try to answer them to the point as well as we possibly can.

Mr. Moore—I have used in my apiary the eight and ten frame Langstroth hive and the Danzenberger hive; I prefer for my own work, and recommend, the Langstroth ten frame hive; they will give for the all-round bee-keeper better practical results; and I just want to say here in regard to this standardization: (While it is off the subject) The idea is not to compel bee-keepers to use any particular size but to get the manufacturers, when they make a Hoffman brood frame, to make exactly the same size frame, so that we could use the frames that any manufacturer made in a hive body that another manufacturer made. There seems to be a little misunderstanding in regard to it.

Mr. Turner—I have used both the eight and ten frame hives for forty years; I don't know which to drop. Take the eight frames—you get better sections—filled up better, and you have more No. 1 fancy; of course in extracting, the ten is better, when you get a fast flow.

Pres. Baxter—This point I want to bring out. In advocating any hive you want to know whether you want it for extracted or comb. While the eight frame Langstroth may be very good for comb honey, it would not be a profitable hive to use for extracted honey. When it comes to extracted honey, there is nothing like the Quimby ten frame—and then tier up as high as you please; you can contract it as you need to to meet the circumstances.

Another thing: Whether you take your bees into the cellar in the winter time or winter them on stands, is a matter for consideration.

Then, again, the matter of cost. If a man is equipped with a certain kind of hives it would be foolish to throw them away or burn them up to get something else—unless he has had poor results with them. All these matters should be taken into consideration.

Question: What is the best way to extract the honey from sections that are too poor for No. 2 at this time of the year?

Mr. Kildow—I would say: Put it in the extractor and extract it. I use a frame that will hold six or eight sections and I put it in the machine and throw it out.

Pres. Baxter—We have a letter here from Mr. Duby, who is one of our Vice-Presidents. Mr. Secretary, will you read it?

Mr. Stone—(Reads letter from Mr. Duby as follows:)

"Owing to the condition of Mrs. Duby, which is critical, I am very sorry to inform you that I cannot be with you at the meeting. Please give my best regards to all my friend bee-keepers in the meeting, and I assure you that I am certainly sorry that I cannot be there, as at

these meetings I have spent the happiest moments of my life. I hope that the meeting will be well attended and the interest good, as I will expect to read the report.

"With best wishes, I am,

"Very truly yours,

"To . (signed) "H. S. DUBY.

"The Illinois State Bee-Keepers' Association.

"James A. Stone, Secretary,

"Springfield, Ill."

Pres. Baxter—What is your further pleasure?

Mr. Moore—Mrs. Duby is ill, I understand according to that letter. Mr. Chairman, I move that the Secretary be instructed to write to Mr. Duby extending the sympathy of this Association to them, and hope for the speedy recovery of Mrs. Duby.

Motion seconded and carried.

(The Secretary did as instructed.)

Mr. Baxter—What time will we meet tonight?

Pres. Baxter—8 o'clock.

Mr. Kelley—I move that we adjourn until eight o'clock this evening.

Motion seconded and carried.

Meeting convened at eight o'clock, President Baxter in the Chair.

Evening Session.

Pres. Baxter—Dr. Burton N. Gates will give us a lecture on the Significance of Bees in the Fruit Orchard, with lantern slides.

The Significance of Bees in the Fruit Orchard.

By Dr. Burton N. Gates (See his picture as Pres. of the National Bee-Keepers' Assn.), Associate Professor of Bee-Keeping, the Massachusetts Agricultural College, Amherst.

Read before the Illinois State Bee-Keepers' Association.

Springfield, November 19, 1914.

The subject of bees as utilized by horticulturists and their value in the setting of fruit has been frequently discussed. It has many phases. I do not need to call your attention to the mechanism whereby the setting of the fruit is accomplished. This is a botanical subject and one which for years and perhaps centuries has been studied. That bees are agents in the transportatiion of pollen is not to be questioned. I could cite many writers, among them Darwin and Muller, eminent authorities upon this subject. They, with others, have delineated the intricacies of the mechanisms which have the pollen or which receive it as well as contrivances so constructed in some instances as to make sure that the pollen is deposited upon the visiting insect, as a honey bee, fly or other insect. It may be assumed, however, that bees are undeniably the most important agents of the transportation of pollen in the case of most of our fruits and vegetables.

There is another phase to the problem. It is a more economic one and would consider the value derived from the honey bee, as well as the need for bees in fruit setting. This is the particular feature of the problem which I wish to present to you. Therein I will attempt to bring out perhaps a new point of view, the most significant of the importance of bees in fruit culture.

It should not be lost sight of, however, that this field of the biology of bees and plants, the relationship of honey bees to horticulture, is somewhat treacherous, and, while it has been worked, as I say, for years, and, while there is a vast accumulation of information concerning the methods by which various plants are pollinated, yet, today there is considerable dispute or, rather, I should say, question as to the acutal need of honey bees or of other insects in setting some of our more important fruits and vegetables. It has been argued that apples, for instance, may be wind pollinated; that is, the pollen may be transported by the agency of the wind. This, according to the best evidence available, should not be regarded as a proven fact; on the contrary, the best evidence is to the effect that few apples, if any, are ever set by wind-transported pollen. Writers are also endeavoring to take the poetry out of the well grounded belief in insects as pollen bearers and the importance of cross fertilization, in an attempt to show that many fruits heretofore fully self-sterile are actually self-fertile. I present, however, what little evidence has been brought forth, bearing upon self-sterility. Some apples, for instance, are known to be partially or perhaps wholly self-fertile, but even then the importance of the insect is not depreciated.

Summarily, however, with full realization of these uncertainties, I am inclined to believe that for years to come, at least, the well founded assumption that bees are to a greater or less extent of service to the horticulturist will persist.

From this standpoint, therefore, and with full realization that future discov-

cries may contradict present ideas, I take up my subject.

It may be safely said that bees pollinate the greatest number of flowers of any insect. Generally speaking, too, every horticulturist is indebted for their inestimable service. But it is a fact that until lately the horticulturist has not made any attempt to retain or maintain bee service, thereby insuring crops. Today, fortunately, he is more awake to the situation and ready to acknowledge the beneficial agencies of bees, to the end of a better crop, thereby meeting that important, yet keen competition.

In the light of the activity of the bee, her service to the horticulturist may be briefly stated as the result of her efforts to secure either nectar or pollen, foods. Pollen of course is the male element of the flower. In her search for nectar or pollen, the bee transports the pollen of the anther of one flower, to the stigma (which is the female organ containing ovules) of another, thereby effecting pollination, which ultimately results in fertilization if the elements are correct. As has been intimated above, many flowers have shown repeatedly that they require for satisfactory fertilization cross-pollination. Likewise cross-pollination has been repeatedly shown to result in better, larger, more fully developed and rounded, oftentimes more highly colored, fragrant, luscious fruit.

The Classes of Bees Which Serve In the Orchard and Garden.

It is of extreme importance to recognize that there are two general classes of bees (roughly grouped) which may be found in flowers. These are spoken of respectively as solitary and colonial or social bees. The solitary bees live isolated and singly; the others grouped or collectively. The social bees comprise a number of genera and species which may be typified by the common bumble bee and the honey bee. The solitary bees are usually disregarded or not seen. All or any of these include the honey bee. This may be wild, but it should be remembered that the honey bee is not essentially a wild insect. The wild honey bee is merely escaped from the hive, or, if you wish, escaped from cultivation. Notwithstanding there are a vast number of these wild insects, it frequently happens in well cultivated localities that the honey bees outnumber all other wild forms. As has just been intimated these honey bees may not come from apiaries under the control of some bee-keeper, but may come from the woods. Were it possible to calculate the value derived in pollinating by the honey bees alone, these returns without doubt would far exceed the total income derived through the produce of honey, bees and wax. Thus, as has already been said, the honey bee is of inestimable value to the orchardist or horticulturist. Moreover, she serves in a double capacity; she is a source of double income.

Fruit and Vegetables Visited by Honey Bees.

It might be well to mention some of the more common fruits and vegetables which are essentially in need of the service of the honey bee. The list might be made much longer than that which I shall give, yet, it is generally estimated that honey bees are important in the setting of the apple, pear, plum, quince, peach, raspberry, blackberry, strawberry, (to some extent and according to locality) the mulberry, peas, bean, currant, grape, squash, melon, cucumber and cranberry. The tomato apparently is not dependent upon the service of bees, yet, in greenhouses for tomato culture, bees have been seen to work on the flowers, apparently for pollen.

The Effect of Season and Climatic Conditions.

It should also be borne in mind that season, locality and climatic conditions are tremendous factors in the activities of bees on these and other plants. For example, the strawberry may be cited.

The writer has seen, in some localities, large areas of strawberries devoid of bees, while, elsewhere, the honey bee was active on this plant. This is repeatedly observed with other plants and in different localities and seasons.

In Cranberry Culture.

In cranberry culture the value of the honey bee has but recently been recognized. The cranberry industry of Massachusetts, for instance, is worth between one million and a million and a half dollars annually. It had been observed that, in certain years, certain parts of the cranberry bogs fail. Dr. Franklin, at the experimental bog in Massachusetts, has carried out some experiments, the details of which show that bees are of service and explains that the failure of bogs or parts of bogs may be attributed to the inability or lack of bees to work the blossoms while the vines are in bloom. It has been shown, too, that the inability of bees to visit these bogs was due to climatic conditions, the prevalence of winds or coldness in a part of the bog. With the large number of blossoms which

are produced on cranberry vines, it was also established that bees maintaianed purposely for their service in pollination were an insurance to cranberry growers, who are now maintaining apiaries in proportion to the area under cultivation. It cannot definitely be stated how many colonies are necessary to a certain area; this will depend upon conditions. It may be suggested, however, that one colony of bees to the acre of a bog is none too many.

In Cucumber Growing.

The cucumber has been mentioned. In Massachusetts, especially in recent years, cucumber growing under glass has developed. Originally the growers "fertilized the plants" by hand, a most laborious process. Bees were later introduced and found to be indispensable, especially in the larger commercial houses. One grower, for instance, has forty acres under glass. Taking the industry in Massachusetts as a whole, it requires between two and three thousand colonies of bees annually to serve in the cucumber greenhouses. These colonies are largely reduced by the extremely unfavorable conditions of greenhouse life, so that cucumber-growing-under-glass demands that the bee-keepers raise bees purposely for greenhouses. The larger commercial cucumber growers, too, have united in certain localities and maintain a circuit bee-keeper whose duty it is to care for the bees of the greenhouses.

In Various Fruit Orchards.

It might be well to take up some of the other horticultural pursuits and show how bees are utilized in these, yet a general statement may serve. Fruit orchards, that is the orchards of larger fields, are much the same the country over. Within recent years incorporated or large fruit-growing companies have developed. With these has come more keen competition. As a natural consequence, in order to avoid the failure or partial failure of a crop, apiaries have been maintained for the orchards and within the last two or three years apple growers, particularly in the west, have definitely decided to maintain bees essentially for fruit setting, disregarding the honey production factor. In connection with the apple industry of the west I shall show you in the slides an almond orchard in California where bees are maintained purposely to set the almonds; so with the pears and lesser fruits. Peaches, however, are apparently not fully dependent upon bee service.

With this general survey of the situation I wish now to turn to a more particular examination of the requirement of bees for horticultural service.

Failure Versus Success.

The reason for the failure in an apparently promising crop of apples, for instance, has not always been correctly interpreted. Moreover, I shall not maintain that the interpretation which I am about to explain will meet every case, yet I believe that you will agree with me that it is exceedingly important and heretofore an unrecognized factor. In order to give you a satisfactory explanation, however, it will be necessary for me to digress.

In nature, especially wild nature, it is a well known fact that prevalence of life, be it plant or animal, is subject to fluctuation due to favorable or unfavorable environmental conditions. When favored, a plant or animal increases in numbers. Plagues, fires, adverse climatic conditions, and hosts of other unfavorable circumstances will cause a species to decrease in numbers. Observations on this point are numerous and to make my contention clear it is but necessary to mention one or two illustrations. For instance, in a given locality there may be a pest of mosquitoes or house-flies this year; next year, in the same locality, the mosquitoes or the flies may become scarce. The same is true of the game birds, fish, insect pests of all kinds, weeds, and to a certain extent of human beings. They are plentiful or scarce from year to year according to the season or the environment. It may therefore be expressed as fundamental biological law which is graphically represented in Fig. ——.

(Dr. Gates inserted many slides to illustrate his lecture—too numerous for us to insert.)

This figure portrays prevalence and scarcity of any species through any period or, for instance, the fluctuation of honey bees in an orchard through any period. For ease in speaking of this condition it may be said that bees have their periods of "ups and downs." Years when they are favored their numbers rise to the crest of prosperity and prevalence, (lower curve), and when unfavorable conditions set in, as for instance when bee diseases are in a locality, their numbers become greatly reduced. Hard winters, scarcity of food, and shifting of population may also depreciate the honey bees of a locality, when the curve would show a depression. Thus within the short space of a year the number of bees in a

given locality may entirely change from the crest to a depression in the curve. Logically the horticulturist may expect to experience as a result a possible shortage in his crops. It merely typifies the biological interrelationship between bees and fruits. Each is dependent upon the other. For certainly in a maximum cropping of an orchard it might be assumed that the fruit raiser is the more dependent upon bees.

At this point, tooo, there is a question arising. How may this fluctuation in the number of bees best be overcome or guarded against?

To my mind there is but one answer. A wise, painstaking, calculating fruit grower will have answered it for himself. He already sees that to protect himself, virtually to insure his crop against possible failure, he must control the prevalence of honey bees (upper curve), that is his pollen bearers. There seems, therefore, to be but one answer: Keep bees for the orchard; maintain the "maximum prevalence." By this means alone can there be certainty of providing ample agents for pollination. Growers commonly plow, cultivate, fertilize, disbud, scrape, spray and thin their orchards or trees according to the best practice of our agricultural and horticultural experts. But in many instances these are of little or no avail if bees are wanting. Trees may grow to perfection but unless there is some insect on hand, primarily the honey bee, to transport the pollen, crops cannot be assured. There is, too, an illustration of a specific instance to this point.

A $3,800 Crop Due to Bees.

In one of the western states there were planted at the same time two comparable apple orchards of about equal acreage and similarly located, each in a pocket in the foothills of an admirable fruit land, both well drained and protected from frosts. One orchard bore heavily for successive years; in the other there was no crop, although the trees blossomed heavily each year. In despair of financial ruin the owner called the assistance of a state experiment station. A pomologist and entomologist was sent out to make an investigation. The ground was gone over several times; the expert was about to return without solving the problem of failure when the question was raised: Were ever bees maintained to set this orchard which has fruited? The owner, however, asserted with full assurance that neither orchard had ever had bees. But the experiment station man did not give up the problem. The ground was gone over again, yet with no further successes. As the specialist was about to leave, in one of the orchards he chanced to see a stream of bees coming from underneath a pile of swale. Further investigation revealed a fallen log sunken in the damp land and covered with grass. This sheltered a large colony of honey bees. Immediately, however, bees were recommended and secured for the other orchard, with the ratther startling result that, instead of, a crop failure, the orchard fruited the next year, netting its owner $3,800 on the crop. These data are secured from a state experiment station and have been reliably compiled.

It has now been shown that bees with certainty benefit an orchard. Another question arises. How many colonies of bees are desirable for an orchard or farm of a given size, despite the fact that there may be wild bees or escaped honey bees in the neighborhood? The fact that there are apiaries maintained in the vicinity of orchards or farms should be considered to some extent, but, were I an orchardist, I should hope to know definitely the reliance which could be put upon my neighbor's apiary. Otherwise his bees might well be counted as wild.

Moreover, I have often said that it is far better, for instance, to flood an apple orchard with bees during its blooming period than to chance their scarcity. Furthermore, the cost of maintaining an apiary is infinitesimal and negligible as compared to the best benefits or returns. Weather conditions should not be disregarded. How often does it happen in the blooming period of fruit trees that the weather is inclement, perhaaps cold and rainy, which, of course, precludes a free flight of bees? At that season of the year, too, bees seldom go as far afield as perhaps they do later in the season. Recently one authority has said that in fruit bloom bees do not travel more than a half mile for pollen. I would therefore raise the question: Is it safe to depend upon wild bees or bees a very great distance from your orchard? On the other hand, would not an apiary adjacent to or near your orchard be more advantageous? This being the case, we are brought back to our original question of: How many colonies are needed?

I used to say that one colony to every fifty mature apple trees would be sufficient. Presumably I said this once too often, for I met with objection in Ontario, where apple growing has reached a high grade of perfection. There the fruit

growers told me that they recommended a colony of bees for every twenty-five apple trees. For general farm service the ratio of bees to the acre of cultivated crops might be different. It is thought that one or two colonies will sufficiently work four acres of melons.

In conclusion, I can but reiterate my contention of importance of bees in all horticultural pursuits. It has not been my purpose to give you many details. To do this I might have to write a book and by the time of its completion I would doubtless find that the new investigations had revealed new results. This is the age of discovery and change. On the other hand, I hope that my fundamental biological conclusions will hold. First of all it would seem that cross pollination is the usual policy in nature, resulting, as I have said, among other things in greater strength, vigor and beauty. Second, that all life is subject to a frequency fluctuation. Therefore, it is not desirable to depend upon bees over which you have no control; it is better to maintain apiaries, especially for their horticultural or their market gardening services. Third, the two biological principles are further substantiated and applied by the practical grower, who is becoming more and more dependent upon bees in his fields, to meet important competition.

With these general remarks it is my purpose to turn to the lantern slides and show you some of the results of the utilization of bees in horticultural work. Therewith I would show you other pictures of apicultural work in Massachusetts, something of the natural history of the honey bee, and, as a general interest feature, a few of the prominent large apiaries of the country.

Following Dr. Gates' talk Dr. E. F. Phillips, in charge of the Bee Culture Investigations at Washington, D. C., explained briefly the methods used by the Bureau of Crop Estimates of the United States Department of Agriculture in obtaining the reports of honey.

"Inquiries are sent out not only to the regular corps of correspondents but also to a picked list of bee-keepers numbering over 4,000. On the receipt of these reports they are carefully examined and the various comments read, after which the estimate for the state is made.

"Various bee-keepers have since expressed the opinion that the estimates for 1914 were very close to the facts and after the correspondents become more familiar with such work it is to be expected that still greater accuracy may be expected."

THURSDAY MORNING, NOVEMBER 20, 1914.

Meeting called to order by the President, Mr. Baxter, at 9:30 o'clock.

Mr. Moore—Mr. Chairman, we, the Auditing Committee, are ready to make a report.

Mr. Baxter—We will listen to the report of the Auditing Committee.

Mr. Moore—(Chairman)

"November 19, 1914.

"We, the undersigned, Auditors of the Illinois State Bee-Keepers' Association, have this day examined the Secretary's and Treasurer's books and reports and find them to be correct.

W. B. MOORE,
A. C. BAXTER,
AARON COPPIN."

Pres. Baxter—You have heard the report of the Auditing Committee—What will you do with it?

Mr. Kildow—I move that the report be accepted.

Motion seconded and carried.

Pres. Baxter—We must have a committee on resolutions; I appoint Mr. Kildow, Mr. Dadant and Mr. Bowen.

Pres. Baxter—Mr. Kildow, we are ready for the Foul Brood Inspector's Report.

Mr. Kildow—Before making my Financial Report I would like to read a little piece from Gleanings, which came just the other day, Wednesday I think—a piece which, if every bee-keeper would read, and remember, would be one of the best things I think that we could have in the way of looking after our bees.

It pertains to what we are trying to do in the way of cleaning up Foul Brood. I think it would be well to read it now, and we may think it over.

(Reading) (This is Dr. Miller's Short Cut in treating Foul Brood.)

Some one wrote to Dr. Miller: "What I want to know is how to cure foul brood economically and quickly. Are there any Short Cuts?"

The Doctor responded that the shortest answer to this letter would be to say that "I have written pages in Gleanings about my experience with Foul Brood, answering fully the questions asked, and it will take a good deal less time for him to look up what I have written than for me to write it

all over again; or I might reply that my experience as given in "My Fifty Years Among the Bees" would give him the information asked. I would rather make him a present of that book than to undertake to reply to this letter."

This man has evidently skipped, in reading, everything printed about Foul Brood—until the disease struck him; bee-keepers should advise themselves in advance and be prepared if the disease appears.

REPORT FOR 1914
OF STATE INSPECTOR OF APIARIES
A. L. KILDOW.

Date.	No. Colonies	No. Apiaries Visited	No. Apiaries Diseased	No. Having A. F. B.	No. Having E. F. B.	No. Colonies Treated	No. Colonies Destroyed	No. Counties Visited	No. Counties Having Disease	No. Days	Expenses	Incidental	Per Diem	Remarks.
1913.														
*Dec.										2				
**Dec.										2	$ 15.35	$ 1.00	$ 18.00	By Inspector.
1914.														
March										1		1.00	4.00	By Inspector.
March	346	12	7	7		4	1			14	27.52	14.60	56.00	By Inspector.
May	1188	22	14	10	4		3			18	37.47	1.56	72.00	By Inspector.
May	284	39	19	13	6	1				10			40.00	By Deputy.
June	790	22	7	4	3	7	6			8	12.68	1.00	32.00	By Inspector.
June	1846	180	51	29	37	17				57½			230.00	By Deputies.
July	1121	43	14	10	4					21	60.94	2.60	84.00	By Inspector.
July	2116	217	71	34	41	23				61			244.00	By Deputies.
Aug.	1747	38	11	7	4					15	53.25	1.00	60.00	By Inspector.
Aug.	2246	164	43	20	26	3	3			70½			282.00	By Deputies.
Sept.	60	2	1	1						14	35.60		56.00	By Inspector.
Sept.	1019	42	7	7	1	21				17½			70.00	By Deputy.
Oct.	15	1								10	19.49	1.00	40.00	By Inspector.
Oct.	31	1	1	1	1	12				1			4.00	By Deputy.
Totals	12809	783	246	143	127	88	13	48	40	323	$262.30	$23.76	$1292.00	Grand Total, $1578.06

*St. Anne Convention.
**Chicago Convention.

Mr. Kildow—I will give you my report. This runs back to December 1st. In April we visited 346 colonies; found 12 diseased; 7 of them with American Foul Brood; treated 4 colonies.

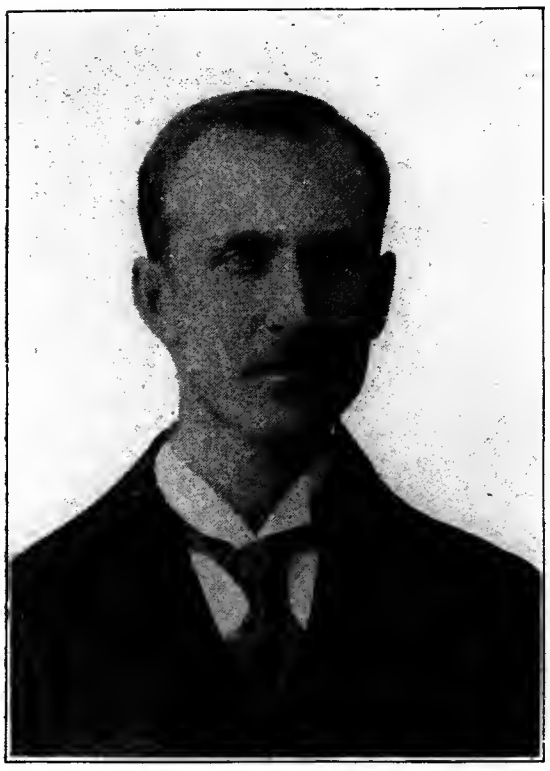
In May we inspected 1,188 colonies; visited 22 apiaries; found 14 diseased with American Foul Brood; four with European Foul Brood.

The same month the deputies visited 284 colonies; 39 apiaries—found 19 diseased; 13 with American Foul Brood, six with European Foul Brood, and treated one colony.

In June I visited 790 colonies—22 apiaries; found seven diseased; four with American Foul Brood, three with European, and destroyed six colonies. The same month the deputies visited 1,846 colonies in 180 apiaries; found 51 apiaries diseased; 29 with American Foul Brood, 37 with European, and treated 17 colonies.

In July the Inspector visited 1,121 colonies in 43 apiaries; 14 being diseased; found 10 having American Foul Brood and four European Foul Brood. The deputies the same month inspected 2,116 colonies, 217 apiaries; found 71 apiaries diseased, 34 with American and 41 with European Foul Brood. There were 23 colonies treated that month. The deputies in some of these apiaries treated the colonies more than once to show the bee-keeper how to treat them.

In August I inspected 1,747 colonies in 38 apiaries; found 11 apiaries diseased and seven having American Foul Brood and 4 European. The deputies the same month inspected 2,246 colonies in 164 apiaries; found 43 diseased, 20 with American and 26 with European



A. L. KILDOW,
State Foul Brood Inspector.

Foul Brood; three colonies were treated and three destroyed.

In September I inspected 60 colonies in two apiaries; found one diseased with American Foul Brood.

The deputies inspected 1,019 colonies that same month, in 42 apiaries; found 7 apiaries diseased; American Foul Brood; there were three colonies treated that month by deputies.

In October I visited 15 colonies in one apiary; the deputies visited that same month 31 colonies in one apiary; found one apiary diseased, one with American Foul Brood and one with European; colonies treated—12. Making the total number of colonies treated—12,809 in 783 apiaries; found 246 apiaries having disease; 143 apiaries with American and 127 with European; 88 colonies were treated and 13 colonies destroyed. We spent 323 days in inspection work; expenses were $262.30; incidental expenses $23.76 (stationery, postage, et cetera), making a grand total of $1,578.06 (as per the report given below), leaving a balance for next spring's work, that is up to July 1st, of $529.83.

It will keep me watching pretty close if that money does not run out before July 1st, so this year for the first time we will have expended all of our money. Last year, you remember, from July 1st to the close of the year we were short on funds. This time we will use all our money and possibly a little bit more if we had it.

In the year 1914 much educational work was done.

For the northern part of the state, a field-meet, or Institute, was held at Rockford, and the bee-keepers of the eastern part held their meeting at St. Anne. Much practical knowledge was obtained and the bee diseases were studied from the infected combs, and methods of treatment were explained.

During the inspection work of this year the following forty counties were found to contain diseased apiaries:

Bureau, Crawford, Clark, Christian, Cumberland, Cook, Douglas, Lake, Mason, Macoupin, Marshall, McDonough, DeWitt, Dupage, Edgar, Ford, Fulton, Grundy, Henry, Madison, Ogle, Putnam, Peoria, Rock Island, Hancock, Henderson, Iroquois, Kankakee, Kendall, Kane, Logan, Shelby, Schuyler, Sangamon, Vermilion, Will, La Salle, Stephenson, Winnebago, Whiteside.

In order to show a proper method of treatment for diseased colonies, eighty-eight colonies were treated by Inspector and Deputies.

It would hardly seem reasonable for the State Inspector and Deputies to undertake to treat all diseased bees in Illinois, but they should thoroughly instruct the bee-keepers, so that they will understand the disease and how to handle it.

Much work has been accomplished by means of correspondence.

The report given above gives a summary of the work of 1914.

Pres. Baxter—Ladies and Gentlemen: you have heard the report of your Foul Brood Inspector, what will you do with it?

Mr. Bowen—I rise for the purpose of making a motion to adopt the report—but before doing so I would like to ask of the Inspector in what part of the state he found the most disease.

Mr. Kildow—My deputies found quite a little this year in the west side of the state,—something we have not found before,—and the east side, southeast of here, along in,—I cannot think of the counties now; it seems to take a circle, beginning at Hudsonville above Iroquois County, down to Hancock; there seems to be found most of the

His wife at left, sitting; her mother and Mr. Kildow, and in background his honey house and workshop.

disease; it seems to be in a circle. I was not in the south very much this year; I have not had any reports from there, but I have had reports from other parts of the state.

Mr. Bowen—In making this report I think it is well to report the locality in which the Inspector finds the disease; have it appear in the report so that men would know generally what the district was that contained foul brood.

What was the total number of colonies examined?

Mr. Kildow—12,809.

Mr. Bowen—A total expense of $1,500 and something.

Mr. Kildow—$1,578.

Mr. Bowen—That would be in the neighborhood of $.13 a colony—the cost for inspection. And the number destroyed was—

Mr. Kildow—Thirteen (13).

Mr. Bowen—13 destroyed; the number treated was—

Mr. Kildow—57.

Mr. Bowen—57 apiaries? I mean to say those that were treated by yourself and deputies—

Mr. Kildow—Yes.

Mr. Bowen—What did you do with those that were not treated?

Mr. Kildow—Left them for the men to treat.

Mr. Bowen—Is that a safe thing to do?

Mr. Kildow—You would get nowhere if you stopped to treat all of them. It is very essential that the owner of the place learn that himself; we could not get deputies enough in the state of Illinois, or money enough, to treat all those colonies; we teach him and instruct him and he must get his fingers in there and learn how to do his own work.

Mr. Bowen—That is true, but it seems to me that it would be the Foul Brood Inspector's place to see that he does it.

Mr. Kildow—We instruct him and, if he does not feel confident, then we treat one and possibly more; if we are satisfied he will not do that, we go back.

Mr. Bowen—Do you re-examine it?

Mr. Kildow—Yes.

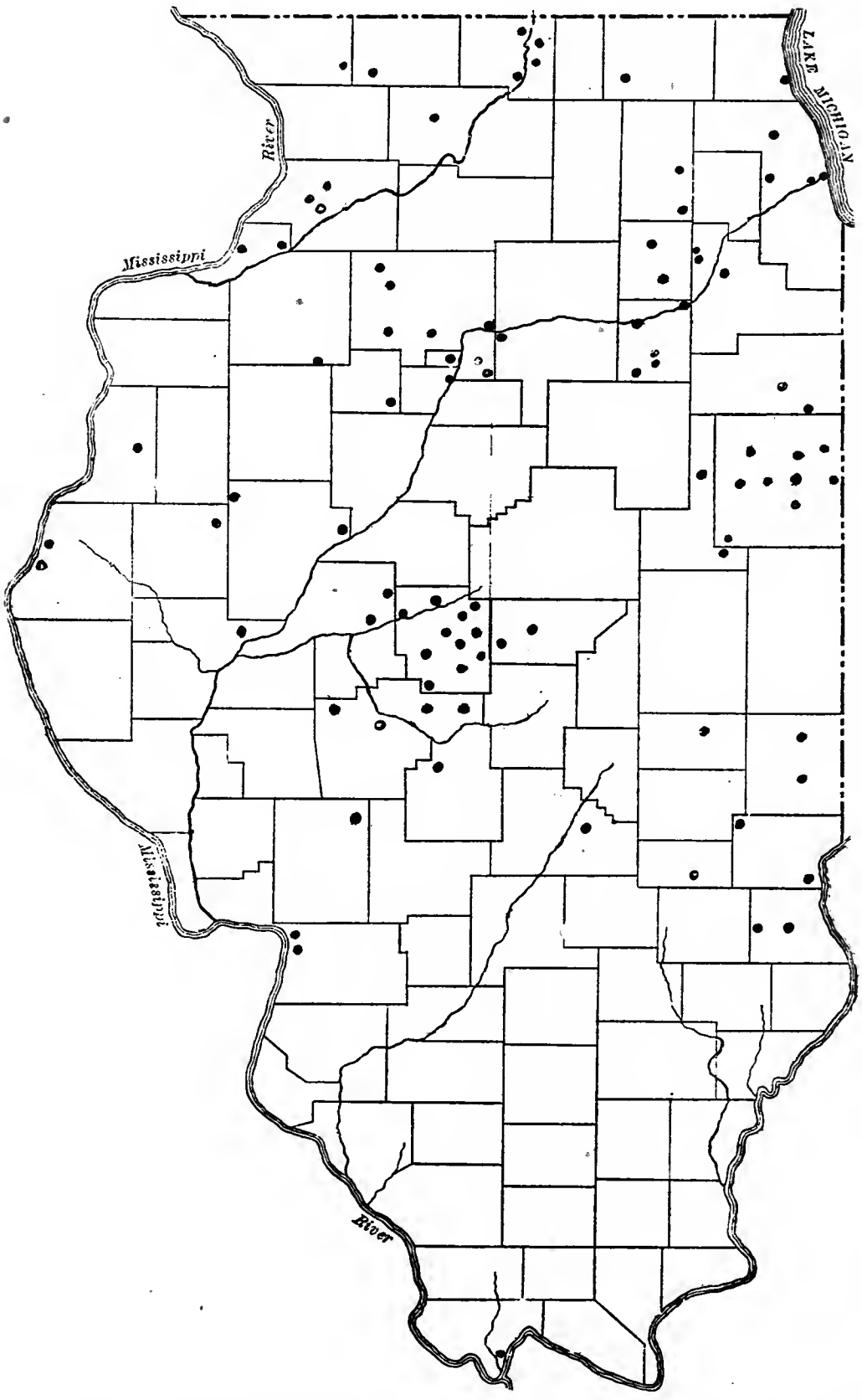
Mr. Bowen—Do you find that the owner treats them about right?

Mr. Kildow—As a rule. They make mistakes like most of us, but as a rule we find them willing to learn and to take care of them. It is an exception that we find a man that is not. We would get nowhere if we treated every one's apiary; and the bee-keeper must do the work eventually.

Mr. Bowen—I move the adoption of the report.

Motion seconded and carried.

Pres. Baxter—I would say in regard to this—that the inspection conducted



Mr. Kildow submitted this map; the little dots show the towns and cities where diseased bees were found in 1914.

by the Foul Brood Inspector ought to be very thorough and there ought to be a very careful record kept of it. Now I think that the suggestion made is a good one; that a record of the localities that have been visited be put in the report, and also the results of the inspection, and I believe we will find that this report is rather complete. When the legislators see this report, they should have some idea of the good that is being accomplished and will be more ready to grant us the appropriation we are asking for.

My idea has been to push the fertilization of flowers, and the good that the bees are doing not only to individual bee-keepers but to tillers of the soil throughout the state—and also what the inspection is doing to save these colonies—to have them on hand to accomplish these objects, so that we can show this to the legislature and the Governor, and we will get what we ask for.

If we can show them we are doing some good—something that must be kept up—we will have no trouble in getting what we ask.

Mrs. Kildow—As Secretary for the State Inspector I wish to state, for the benefit of those who do not know, that a record is kept of every apiary that is visited, either by the Inspector or Deputy, the name of the party owning, the number of colonies he has, the kind of disease he has, by whom treated, when treated, and then later the result of that treatment, and in a number of cases cards have been left to notify the Inspector or his office when the Inspector is away working. Those are also on file in the office under the owner's signature.

Mr. Moore—I found on Inspection work in the western part of the state, under our present crop conditions this season, extremely dry; no honey coming in—it was practically impossible to treat diseased colonies with any degree of success. The conditions were such that if you opened a hive robbing was started immediately. I advised those parties to watch the bees carefully and if any dwindled out in the early spring or winter—to destroy those combs immediately and close the hives up; and I said that I or some other Inspector would be there next spring as soon as possible to work with the bees. That if they wanted to go ahead in the spring and clean up before any one got there, all right; but knowing conditions this fall I didn't think it advisable for them to do the treating.

I found in localities where we find American Foul Brood there is often very little European Foul Brood; only one or two cases; in my territory it is practically all American Foul Brood. I found in isolated cases—isolated localities rather—where practically all the bees in that locality would be diseased but a few miles from there there would be no disease. I thought the plan would be in these localities to destroy all combs in the very weakest colonies in the spring and allow no robbing, and we could then get in and clean up.

Pres. Baxter—Mr. Moore's position is a correct one. I don't believe there ever was a time in Illinois when weather conditions were so favorable for Foul Brood, and no time when conditions were so adverse for the treatment of Foul Broody Colonies. It is very important to find out where the disease is; to caution the owners to be careful and destroy the colonies when they get so weak there is no hope of saving them so as to prevent robbing and spreading the disease, and that is why last fall, if you remember, I cautioned our Foul Brood Inspector to put in all the time he could this summer with the deputies.

We don't want to let it spread at all if we can help it, and there never was a time so propitious as now to spread the disease.

Mr. Kildow—That is why I say we will use up all the money we have got; we have to go around this spring as soon as the conditions are fit and clean up. This is one of the worst years we have had for Foul Brood to develop, and if we can stop it we will be in pretty good shape.

Pres. Baxter—Mr. Kildow and myself have some business to attend to this morning. Mr. Kildow was Chairman of the Committee on Resolutions; Mr. Bowen will please accept the Chairmanship of this Committee on Resolutions. Mr. Kildow has to be out of the room a good part of the time today. I think it will be better, Mr. Bowen, that you take the Chairmanship of this Committee. You will know what is going on and what needs to be reported.

Now, if Mr. Moore will please take the Chair, I will go with Mr. Kildow.

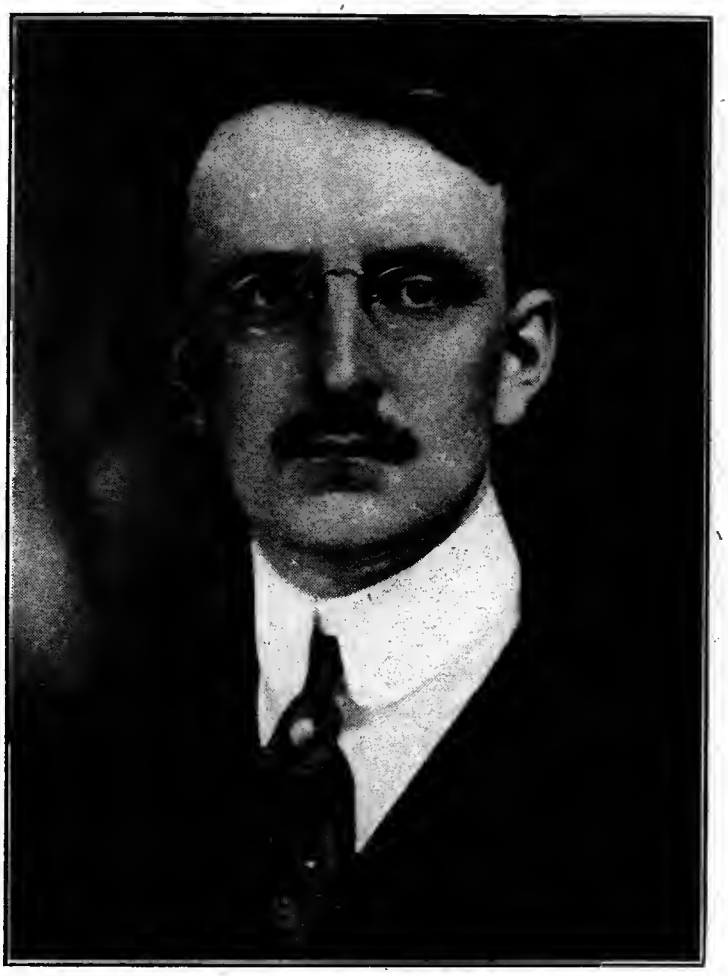
Mr. Stone—Mr. President, it will be well to tell the Convention what you and Mr. Kildow are going after.

Pres. Baxter—We want some money. We want to know what this Bureau of Information means—how it is going to affect us. We are going to the State Auditor.

Mr. Moore takes the Chair.

Mr. Moore—Is there anything further in regard to Foul Brood Inspection work or in regard to Foul Brood in any form —any information you wish?

If there is nothing more, we will proceed to the next subject. We have Dr. Phillips with us, his topic is Temperature and Humidity in the Wintering of Bees.



Dr. E. F. Phillips, in charge Bee Culture Investigations, Washington, D. C.

"TEMPERATURE AND HUMIDITY IN THE WINTERING OF BEES."

Dr. Phillips—I am very glad of the opportunity to come out and meet the Illinois Bee-Keepers again. I enjoyed my former visit with you at the Convention several years ago very much and was greatly pleased that it was possible to arrange for a series of meetings through this section of the country so that I could get here as well as attend the meetings in Indiana, Iowa and Wisconsin.

This has been a rather strenuous week but Dr. Gates and I have had a good time so far and we expect to meet still more bee-keepers and have still more good times before this circuit is completed.

The subject announced for me this morning is the Temperature and Humidity of the Hive in the Wintering of Bees.

It is not necessary to argue before a company of bee-keepers, especially in the north, that the successful wintering of bees is not only one of the most important problems before the bee-keeper but also at times one of the most difficult of solution. You all

know that the winter losses are considerable but it is nevertheless a fact that bee-keepers often fail to realize in full the magnitude of the winter loss, in an average or even in a mild winter. The season of 1911-12 was the most recent case that we have experienced of a winter accompanied by severe losses. The summer of 1911 was a poor season for most localities in the north and most colonies were weaker than usual all summer. They went into winter weak, short of stores and with too many old bees. The winter was exceptionally severe and many colonies were not in condition to expend the energy necessary to maintain life and as a result the loss by the death of colonies was over 50 per cent in many apiaries. If the bees had been in condition to obtain the bountiful crop of 1912, that year would have been a banner year in bee-keeping but there were not enough bees.

Similarly in 1909 there was a dearth of nectar but an abundance of honeydew in many localities, causing enormous losses in the following winter. The winter of 1903-4 was another of heavy losses while that of 1884-85 was one of the worst ever experienced by American bee-keepers.

It is of course evident that good bee-keepers lose less colonies than those who are uninformed, but even the good bee-keeper loses sometimes. An estimate of 10 per cent for the average annual loss is probably conservative and it speaks well for bee-keeping as an occupation that American bee-keepers can sustain such a loss year after year without destroying the industry. Looking, then, at the other side of the picture it is clear that if this loss can be prevented bee-keeping ought to advance rapidly to its rightful place in American agriculture.

From the experience and observations of bee-keeping we now know considerable about wintering, and our information is increasing constantly. There are two facts concerning this information to which attention should be directed. First, many of the very best observations have appeared in the bee journals but are now practically forgotten because bee-keepers are often not careful enough to keep complete files of their journals and to consult them frequently. A bee journal is not altogether a newspaper but should be considered as a permanent record of the good things observed. The other consideration is that the results have been obtained at enormous cost since they are records in the main only of gross results. A bee-keeper tries a certain method of wintering and necessarily gauges his success by what is left the following spring. With the facilities of the apiary detailed observations as to the daily activities and requirements of the bees are impossible and consequently our knowledge of wintering is based largely on commercial experience but is lacking in facts concerning the detailed needs of the bees.

In the present discussion of this subject it is proposed to depart somewhat from the usual methods in discussing the wintering problem and to record some of the things that bees do in winter as well as to explain some of the physical phenomena observed. In doing so I shall draw on the results published by Mr. Demuth and myself concerning our work of the past two years. While I am having the pleasure of attending this meeting Mr. Demuth is back at the laboratory making more observations, although rightfully we should read this paper as a duet.

The Source of Heat in the Colony.

It is a well known fact that bees generate heat during cold weather, so that the temperature of the cluster never drops very low. The lowest temperature that we have found is 57° F. In order to see what the bees do during this period of heat production, we devised a special outfit so that we could see the inside of the cluster. A colony in winter forms a compact, approximately spherical cluster and on the outside of the cluster there is nothing that one can see that suggests the heavy heat production that must take place. However, a narrow hive was provided with double glass sides and top with an air space between the sheets of glass to act as an insulation. The stores were then so arranged that the only space available for the cluster was next to the glass on one side. In the outside space were placed a number of the electrical thermometers which we used and which are briefly described in Bulletin No. 93 of the Department of Agriculture, to which those interested are referred. In the space provided there was not room for a spherical cluster, so the bees formed a hemisphere,

the equator of which was against the glass. This shown as a circle of bees on the glass exposing to view the center of the cluster.

It was then clearly demonstrated that the cluster is not uniformly compact. The cluster consists, between the combs and sometimes above and below them, of an outer shell of bees packed close together with their heads toward the center. The thickness of this ring varies with the weather, being thicker when the outer temperature is warm and when less heat production is needed and becoming thinner with the increase in heat production. This is because when more heat is produced more bees are needed for this work, leaving less for the outer rim.

In order to expose this colony to rapid changes in temperature, the hive was placed on the roof of the building and, while one person watched the bees, another read the temperatures in the room below, where the instruments were located. A telephone was installed so that the two persons could be in constant communication, head pieces being used so that the hands of both observers were free. The observations made on the roof were then given over the telephone and all records were made below. This colony was of course in the light, but the normal cluster was nevertheless observed. The colony was disturbed as little as possible during the observations, to eliminate abnormal conditions.

The nearly spherical cluster of bees consists, between the combs and sometimes above or below them, of an outer shell of bees close together with their heads toward the center. This ring may be several layers thick. The position, with the heads inward, is typical, except when condensed moisture drops on the cluster as it often does in cool weather, when the bees at the top turn so that their heads are upward. The bees in this outer shell are quiet except for an occasional shifting of position. Inside this rather definite shell the bees between the combs are not so close together nor are they headed in any one way. Considerable movement, such as walking, moving the abdomen from side to side, and rapid fanning of the wings, takes place inside the sphere and when a bee becomes unusually active the adjoining bees move away, leaving an open space in which it can move freely. Two bees may often be seen tugging at each other. In addition to the bees between the combs, placed as above described, others are in empty cells of the comb on which the cluster is always formed, always with their heads in. A verification of these statements is contained in the following observations, and the experiment may easily be repeated by anyone. For the purpose of obtaining a colony without combs for another experiment, a hive was opened December 15, 1913, while the outside temperature was low enough to cause the formation of a compact cluster. When the combs were separated the circle of bees in the shell was clearly observed. When a comb from the center of the cluster was shaken the active bees in the center of the circle dropped off readily, and those in the outer shell which were somewhat sluggish were removed with more difficulty. After this was done those occupying empty cells in the center of the sphere backed out of the cells and were shaken off. Finally those occupying cells in the border of the sphere backed out, showing a well marked circle on the combs. Evidently the bees in the shell, whether in the cells or between the combs, are less active than those in the interior of the cluster. Naturally such a manipulation as this is not to be recommended, except for purposes of demonstration.

It is clear from observations previously recorded that the highest temperatures are those of points in the center of this shell, and this is to be expected, as the heat is generated here. The outer shell constitutes an ideal insulator for the conservation of the heat, since the bees arranged so close together form small dead air spaces in their interlacing hairs, especially those of the thorax, and afford still more insulation with their bodies. The abdomens of the bees in the outer row are practically separate one from another, and must often be exposed to severe cold. That this method of conserving heat is effective is shown by observations on undisturbed colonies out of doors. For example, on January 14, 1914, there was at 9 a. m. a difference of 68° F. between thermometers 14 (center of the sphere) and 16 (outside the cluster) of Colony D, which were less than 4 1-2 inches apart on the same level in the same space between combs, and a difference of 75° F. between this couple and the bottom board 4 1-4

inches below it. What this difference might sometimes be in colder climates may be imagined. Examples of this kind might be multiplied indefinitely from the records of these experiments.

The source of the heat of the cluster must, of course, be the oxidation of the food consumed by the bees. The bee is classed as a cold-blooded animal in that the temperature of the individual bees is practically that of the surrounding medium. There is obviously, from the records just given, no internal regulation of the temperature of the body such as is found in birds and mammals, for the temperature of a broodless cluster varies greatly. From the observations made on the various colonies, especially Colony C, it is clear that heat for the warming of the cluster is produced by muscular activity. While, of course, some heat is doubtless liberated by other life processes, this is practically negligible when bees are quiet, as in Colony A when above 57° F. That higher temperatures may be produced, greatly increased muscular activity is required, and in Colony C in cold weather bees in the center of the shell of insulating bees were seen fanning vigorously and executing other movements, such as shaking and rapid respiration. We thus have the paradoxical condition that bees fan to heat the cluster in winter as well as to cool the hive in summer. Observations of this kind were repeated beyond number, and this theory of the method of heat production is entirely supported by the repeated observation of a humming noise from the cluster during cold weather.

A few details of the observation on Colony C may be of interest. For example, one bee was observed fanning vigorously for 7 1-2 minutes (9.53 to 10.00 1-2 a. m., Jan. 23d) while the other bees kept a space cleared for it. The temperature of the nearest thermometer rose 1-2°F. during this time. At 9.52 this thermometer was almost a degree cooler than at the time of greatest heat during the fanning. The rapidity of fanning of the wings varied, and toward the end of the time it became so slow that the outline of the wings was distinguishable. After the excessive activity this bee stood in the same place for a time. Rapid respiration may play a more important part in heat production than at first appears. One bee was observed to breathe 21 times in 14 seconds and then cease the rapid respiration. On other occasions 50 or more bees would begin shaking their bodies from side to side.

The Effect of Changes in External Temperature on the Heat Production. Another colony (Colony A) was used during the winter of 1912-13 to determine the responses of a normal colony to changes in outer temperature. It also was located on the roof, where the bees were free to fly whenever the wheather permitted and where it was exposed to rapid changes in temperature. It was in a 10 frame Langstroth hive, the entrance being reduced to 3-8 inches deep and eight inches wide and the colony was not packed or given additional protection. In this hive we placed nineteen electrical thermometers, three on the bottom board in a row down the center, one in each upper corner and twelve among the combs distributed in such a way that the cluster could never get away from all of them. Readings were made hourly from 9 a. m. to 4 p. m. through the entire period of observation (Sept. 26th to March 28th), except Sundays and holidays, and at intervals additional special series of readings were made every 15 minutes (sometimes every 30 minutes) during the night (5 p. m. to 8:45 a. m.) for periods of several days each. In all 41,413 records were made of temperatures in Colony A.

The reaction of the cluster in heat production, as induced by changes in external temperature, is well shown by the records made from noon November 13 to 2 p. m. November 15 (1912), when readings were made hourly from 9 a. m. to 4 p. m. and every 15 minutes at night. From noon on November 13th the outside temperature dropped slowly until 6 a. m. November 15th, and the weather was cloudy, so that the bees did not fly. At noon on the 13th the outside temperature was about 69.2°F. and all the points within the hive were then cooler than the outside air, due to the fact that it took some time for the inside of the hive to warm up. At 4 p. m. the outside temperature had dropped to 65.3°F., when it was lower than any of the points within the cluster, which had in the meantime become warmer. From this time until 6 p. m. the next day (14th) the temperature within the cluster gradually dropped as the outer air cooled, until the lowest one (No. 9) was 57°F.

(Outside temperature, 48.2°F.) The generation of heat began at 6.15 p. m. at this point, which was to one side of the cluster, and is to be attributed to the movement of the bees in forming a definite cluster. At 6:30 p. m. a rise in temperature was noticed on thermometer 19, at the other side of the cluster. Until 10.15 p. m. the changes in temperature are probably to be interpreted as incidental to the formation of a compact cluster, and from this time until the next day at the close of the series of readings the thermometers within the cluster showed a considerably higher temperature than the outer air, or than the thermometers outside the cluster. The maximum in this series was reached at 3.15 a. m., November 15th, when thermometer 12 in the center of the cluster registered over 89.4°F.

After the coldest outside temperature was reached and the outer air began to get warmer (6.15 a. m., November 15), there was a tendency for the cluster temperatures to drop. This is somewhat noticeable in the case now being discussed, and is more clearly seen in records obtained in other series. In general, after a period of cold, when the outside temperature begins to rise, the cluster temperatures drop slowly to meet the outside temperature. The generation of heat is reduced, or even discontinued, only to be increased when the outside temperature again drops, or when it gets high enough to induce greater activity, as in flight. It is found also, by taking more frequent readings when the cluster temperature is above about 69°F., that it is less constant than when it is below this temperature, indicating that at temperatures above this point the bees move about to some extent, while between 57° and 69° they are quiet, unless flight is desirable owing to a long confinement.

This series of readings is supported by numerous records taken on this and other colonies throughout the winter and, since all the observations tend to confirm what was first seen on the record presented here, we feel justified in presenting a definite statement of the reactions of the cluster to outside temperatures. It may be added that a careful study of the records of previous investigators fails to show a similar statement on this subject. When a colony is without brood, if the bees do not fly and are not disturbed and if the temperature does not go too high, the bees generate practically no heat until the coolest point among the bees reaches a temperature of about 57°F. At temperatures above 57°F. a compact cluster is not formed, but the bees are widely distributed over the combs. At the lower critical temperature, which is for the present stated as 57°F., the bees begin to form a compact cluster, and if the temperature of the air surrounding them continues to drop they begin to generate heat within the cluster, often reaching temperatures considerably higher than those at which they were formerly quiet and satisfied. It is evident, therefore, that the temperature within the cluster is far from being uniform in winter, as has been, in a sense, assumed among practical bee-keepers. At the temperature at which other insects become less active (begin hibernation) the honeybee becomes more active and generates heat, in some cases until the temperature within the cluster is as high as that of the brood nest in summer. To sum up, when the temperature of a colony of undisturbed broodless bees is above 57°F. and below 69°F. the bees are quiet and their temperature drifts with the outer temperature; at lower temperatures they form a compact cluster, and the temperature within it is raised by heat generated by the bees.

We desire to state that while the lower critical point, 57°F., appears rather well established, the observations up to the present do not justify too definite a statement concerning the upper limit of quiescence. It must be emphasized that these conditions do not apply when the colony has brood. The rearing of brood in winter causes a marked increase in heat production and constitutes a condition which may become one of the most disastrous that can befall a confined colony.

When the heat production of the colony is explained, we are able to understand to some extent the divergence in the records obtained by other observers. It has, of course, long been known that bees generate heat, and it has been pointed out that during cold weather the temperature of the cluster is often higher than during warmer weather. While the temperatures previously recorded are in most cases

abnormal, due to disturbance, the chief difficulty in understanding the phenomena which take place is due to insufficient observations. For example, if between noon November 13 and 2 p. m. November 15 only a half dozen temperature records had been made for the cluster (and perhaps without finding the warmest part of it) and the outside air, it would have been impossible to determine the limits of heat production. Most observers have been satisfied with a few observations. and seemingly every one who has inserted a thermometer in a hive has felt called upon to publish the results, thereby only confusing the problem.

The Effect of Confinement and the Accumulation of Feces. Before beginning a discussion of the effect of confinement and the accumulation of feces it may be recalled that during the active summer season the length of life of worker bees is in a sense determined by the work done by them, rather than by days or weeks. The greater the necessity for excessive activity the shorter the term of life. We believe that we have evidence to prove that this applies to the winter also, and this belief is entirely supported by the experience of bee-keepers everywhere. That bees may come out of winter quarters strong in numbers and vitality it follows that the work to be done by the bees in the winter should be reduced to a minimum; and the winter problem, as thus interpreted, is therefore to find the conditions under which broodless bees do the least work. The work which broodless bees do in winter consists, so far as has been determined, solely in the production of heat or in activity incident to flying on warm days (if free to fly), and therefore the problem, so far as it is under the control of the bee-keeper, is primarily to obviate the necessity for the production of heat. If brood is reared the work of the bees is necessarily enormously increased, and their vitality is correspondingly decreased. So far as evidence is available in our work, the colony is not fully recompensed for this expenditure of energy by an increase in the strength of the colony by bees thus reared.

The colonies to be discussed under this heading (Nos. 1 and 3) were wintered in a constant-temperature room at the University of Pennsylvania, Philadelphia, Pennsylvania, in special 6 frame hives (to economize space and concentrate the colony so that fewer thermometers would be required) with full entrances and were not propolized or sealed at the top. During the regular series of readings the room was kept at a temperature which rarely dropped below 40°F. or went above 45°F., and the average temperature from October 14 to March 6 was 42.67°F. This temperature was chosen as being nearly the one usually considered best by bee-keepers. The foods given these colonies were stored in the combs, just as placed by the bees. There was some pollen available in colony No. 1. On this colony, 24,077 temperature readings were taken.

According to what has been said in the previous section, we should expect bees at such a temperature to maintain a compact cluster and to generate some heat at all times. This was actually the case, the temperature of the interior of the clusters dropping below 64°F. only a few times in either colony.

Colony No. 1, on honey stores, was in the constant-temperature room from October 12, 1912, to March 24, 1913, or 163 days. It was then removed for a flight and put back the same evening, where it remained until March 28. From March 7 at 9 a. m. until March 28 at 4 p. m. readings were made on this colony every 15 minutes night and day, with the exception of the period between 9 a. m. and 7 p. m. on the 24th, when it was out of doors. During this period of three weeks the temperature of the room was changed slowly, being raised as high as 64°F. and cooled to 13°F.

When this colony was first placed in the room for the regular series of readings, after a preliminary confinement, October 12 (the readings were begun Monday, October 14), it maintained a cluster temperature which usually lay between 64° and 68°F., the daily average temperature departing from these rather narrow limits only four times up to November 22. The average temperature is 66.5°F. During the first five weeks the temperature of the room was less regular than later (due to faulty working of the regulating apparatus), and this doubtless accounts for some irregularities in the cluster temperature. At first the three ther-

mometers in the cluster (1, 2, and 5) gave temperature readings quite close together, while thermometer 6, which was near the cluster, gave readings intermediate between the three thermometers of the cluster and the four others in the hive, farther from the cluster. After November 22 the records of the thermometers in the cluster were more widely separated and the temperature of the center of the cluster (shown on thermometer 5) tended to rise gradually. It varied constantly, but by December 7, and from then until the end of the month, it averaged between 69° and 75°F. On November 29 and December 12 the cluster temperature rose to over 88°F. From the 1st of January until March 6, which ended the regular series of readings, the cluster temperature became more and more irregular, and on January 20 the cluster moved (probably to accommodate itself to the stores) until thermometer 2 was nearer the center and showed a higher temperature than thermometer 5. The size of the cluster was gradually decreased by the death of bees, and all the thermometers except 2 and 6 show a gradual decrease in temperature until finally, from about February 25 to March 6, they are all low and of nearly equal temperature. The two thermometers giving high readings continued to show in general a higher and higher average temperature and to become more irregular (except from February 15 to March 1), the periods of increased heat becoming more frequent. There was absolutely no regularity in these intervals. After February 1 the temperature of the cluster varied between 75° and 91°F., the average from February 1 being 85.4°F.

On March 6 all colonies in the constant-temperature room except two were removed. The colony described above (No. 1) and one other (No. 2), not to be described at present, were left. On March 7 at 9 a. m. the temperature of the room stood at 42°F., and the temperature of the interior of the cluster was about 84°F. The brine which cooled the room was then shut off and the temperature of the room rose very slowly and regularly, until on March 11 at 8.45 a. m. it was 64°F. For the first day the temperature of the cluster was slightly variable, and at 10.45 p. m. thermometer 6, which had been cooler than thermometer 2, showed a rise in temperature (probably due to a shifting of the cluster), and from then on to the 24th they were nearly of the same temperature at all times. On March 8, at 3 a. m., thermometer 2 rose to 87°F. (room temperature, 48.5°F.), having previously shown a cooling. The cluster temperature then dropped slightly, showing relatively little variation until at 4.15 p. m., March 9, it stood at 77.3°F. (room temperature, 55.7°F.). As the room temperature continued to rise, the cluster temperature increased still more rapidly, until at 8.15 a. m., March 11, it reached 93°F. (room temperature, 64.2°F.). A little brine was now turned on, sufficient to lower the temperature gradually to 58°F. at 9 a. m., March 12, and it again rose to 63.3°F. at 5.45 p. m., March 15. During this period the cluster temperature followed the room temperature, but remained constantly over 20° warmer. The room was again cooled slowly, and the cluster temperature dropped until on March 16, at 3 p. m., the room was 49°F. and the cluster 77.5°F. As the room continued to cool, the cluster temperature increased, the bees responding to the colder temperature, until at 4.15 a. m., March 17, the room was 48°F. and the cluster 88°F. The room then gradually warmed, and again the temperature of the cluster dropped and then again rose with the room temperature, remaining always over 20° warmer. At 6.45 p. m., March 19, the brine was turned on full and the room cooled rapidly, reaching the minimum of 13°F. at 9 p. m., March 20. At no time, however, did any of the thermometers in the hive record a temperature below 33°F. Here it remained constant within 0.1°F. for about six hours, during which time the cluster temperature varied between 86.5° and 89.5°F. (a difference between the room and the cluster temperatures of 73° to 76°F.). The brine was now shut off and the room again warmed until 9 a. m., March 24, when it reached a temperature of 44.5°F. During this warming the cluster cooled until at the close it was varying between 72° and 79°F.

As stated above, the colony was now (9 a. m., March 24) removed for a flight and put back the same day at 7 p. m. In the meantime the room was cooled to 33°F. When the bees were put back into the room the temperature of the entire inside of the hive showed great variation and naturally

an increase due to the warming up while out of doors and to the activities of a good flight. The points outside the cluster dropped rapidly, but it was midnight, March 25 (31 hours), before the curves of temperature again appeared normal. The room was slowly warmed to 63.2°F. at 6.30 p. m., March 26, and then slightly cooled to 54°F. at 6 a. m., March 27, and again warmed to 58.5°F. at the close of the series, 4 p. m., March 28. After the flight the temperature of the cluster never dropped below 89.5°F., and the highest temperature reached was over 95°F. (soon after the flight). Thermometer 6 remained high, but thermometer 2, which had previously been high, now approached the other thermometers, probably due to a rapid loss of bees and to a decrease in the number of bees during the flight. It must be recalled that these bees had been confined for an abnormally long time and were subjected to treatment which is at least unusual. After this colony was taken from the room for the last time it was found that thermometer 6 was over a patch of larvae, and, estimating as accurately as possible, the eggs from which these hatched must have been laid at the time when the room was coldest (March 20-21) and when the cluster temperature was at its highest point. There had been no brood previously, according to the temperature records, as compared with those of this colony earlier and with those of other colonies, nor was there much evidence of increased heat production due to the presence of brood until after the flight. Probably no extra heat was produced for the eggs, and possibly the hatching of the eggs was somewhat delayed by the low outer temperature. The effects on the cluster temperature which might be expected from a flight, in relieving the accumulation of feces, were not observed, because brood rearing had been begun.

Colony No. 3 was placed in the constant-temperature room October 12, 1912, after a good flight, and readings were begun on Monday, the 14th. In all, 2,165 temperature records were made on Colony 3. The stores provided this colony consisted of honeydew honey, which was gathered in the department apiary and which, since it granulated almost at once, had been removed by melting up the combs which contained it. After this operation it remained liquid. During the summer of 1912 some of this honeydew honey was fed to a colony in the open, during a dearth of nectar, and was stored in new combs above the brood chamber, in which no cells of pollen were to be found. After the second storing the honeydew honey was clear, well ripened, and did not granulate. This colony was also in a 6 frame hive, as previously described, and contained five thermometers (Nos. 14-18) among the combs. It is of course well known to bee-keepers that honeydew honey is not a good food for winter.

When this colony was first put into the constant-temperature room, it behaved much as did Colony No. 1, except that the temperature varied between 69° and 78.7°F. for the first week, being slightly higher and more variable than that of Colony No. 1. The second week it remained much the same, the temperature, however, varying between 69° and 80°F. From this time on the temperature of the center of the cluster rose rapidly, never dropping below 79°F. from October 29 almost to the close of the readings. After November 4 the temperature remained above 86°F., and after November 11 it dropped below 89°F., only twice until the end. Thermometer 17 at first read about 4° below thermometer 14, but after November 11 they were close together until November 25, when thermometer 17 began to cool rapidly, due to loss of bees, and after November 30 thermometer 14 cooled rapidly until, on December 9, it showed that no more bees remained alive. From December 2 to 7, inclusive, there was little heat generated, due to the scarcity of bees. It is of interest to observe the records of thermometer 16, near the cluster, but usually outside of it. It at first showed a temperature but little higher than the two thermometers away from the cluster, but on October 31 it began to rise until, on November 12, it reached 80.5°F., when it was doubtless covered by the bees. Even the two thermometers (15 and 18) clear to the back of the hive rose until, on November 13, they recorded 61.5°F. These thermometers showed about the same temperatures for about 10 days, and then these two and thermometer 16 showed a cooling, since the bees were dying so fast that there were no longer

enough to warm up these thermometers away from the center of activity. It was to be expected that this colony would die, and the experiment was performed to learn the phenomena incident to the loss.

Before summing up the results of these two colonies, Nos 1 and 3, it may be stated that, so far as the evidence here presented is concerned, the results as far as here discussed are confirmed by records from 10 other colonies kept in the constant-temperature room, but fed other foods and otherwise different. There is in all of the records no evidence which we can interpret as at all contrary to the views here stated.

It is evident from the behavior of colony No. 1 that at least one factor entered which gradually caused the bees in the cluster to generate more and more heat until at the beginning of the special series, March 7th, the cluster temperature was about 20° warmer than it was at the same room temperature at the beginning of the confinement. It is also seen that during the special series, March 7-24, the cluster temperature always remained at least 20° above the room temperature, whereas from the discussion of bees unconfined (Colony A) we might expect them to cease heat generation when above the lower critical temperature (57°F.). In the case of colony 3, fed on honeydew honey stores, the factor which caused more heat to be produced evidently increased much more rapidly. As stated previously, honeydew honey is a poor food for winter and is so recognized. It contains the same sugars as honey, but contains in addition a considerable amount of dextrin, the particular lot fed to colony 3 containing 4.55 per cent while good honeys contain only a fraction of 1 per cent. From the evidence at hand it appears that dextrin can not be digested by bees and, whether or not this is the explanation, honeydew honey causes a rapid accumulation of feces which usually results in the condition known as dysentery, in bad cases of which the feces are voided in the hive. In the case of colony 3 the whole hive inside and out, as well as the frames and combs, were spotted badly, the inside of the hive being practically covered. Even with fine honey stores such a spotting is usually noticed after a prolonged confinement, especially in severe weather (or during brood rearing). It therefore appears that the accumulation of feces acts as an irritant, causing the bees to become more active and consequently to maintain a higher temperature. We are therefore justified in believing that the cause of poor wintering on honeydew honey is due to excessive activity, resulting in the bees wearing themselves out and ultimately in the death of the colony. In the case of colonies on good stores the feces accumulate more slowly and the excess activity is not so marked and is induced more gradually. The accumulation of feces due to confinement causes increased activity and this in turn is the cause of excessive heat production, resulting in a reduction in the vitality of the bees.

It therefore follows that excessive activity causes the consumption of more food, resulting in turn in more feces, so that colonies on poor stores are traveling in a vicious circle, which, if the feces can not be discharged, results in the death of the colony.

While the activity of the cluster is greater at some times than at others, there are not, as has been held, regular intervals of activity at which the colony rouses itself to take food. At no time is a colony kept at a room temperature of 45°F. or less in a condition which can be characterized as inactive. Presumably the reported "intervals of activity" have occurred when the colony made a noise due to disturbance by the bee-keeper.

The bees in colony 3 were compelled to work constantly to maintain so high a cluster temperature. In fact, they did more work than colonies wintered in the open air. Keeping these bees in a cellar protected them from low outside temperatures, but the lack of opportunity for a normal ejection of feces caused a condition more serious than extreme cold weather. We seem to have here an explanation of the fact, often observed by bee-keepers, that some colonies wintered in the cellar are in worse condition in the spring than colonies that are exposed to severe cold. Poor food is evidently a more serious handicap than low temperature.

Humidity in Winter.

This subject is one concerning which less definite information is available, although it is one which has been much discussed by bee-keepers. One of the

chief difficulties seems to be a lack of information concerning the interrelationship of temperature and relative humidity and it may be well to make some of these points clear.

The Source of Moisture in the Hive. All northern bee-keepers know that under some conditions, especially in the cellar, the atmosphere in the hive in winter may become so laden with moisture that it cannot all remain in the form of water vapor but condenses on the hive and combs. Water may even run from the hive during the winter confinement. Obviously this moisture does not come from outside the hive for this often occurs when the cellar appears dry.

Within the hive the only source of moisture is the food consumed by the bees. Honey not only contains about 20 per cent water but when the sugars are consumed and assimilated the final products are carbon dioxide and water. Honeys vary in composition but on an average when one pound of honey is consumed there is produced about two-thirds of a pound of water and, since honey is one and one-half times as heavy as water, one gallon of honey when consumed produces approximately one gallon of water.

If we take for example a bee cellar containing 216 colonies and estimate the average consumption of honey during the winter at ten pounds per colony the total honey consumed is 2,160 pounds or 180 gallons. This produces 1,440 pounds of water or 180 gallons, enough to fill six 30 gallon barrels. If these colonies are in the cellar for four months there will be given off one and one-half gallons of water a day and unless there is considerable movement of air within the cellar the atmosphere cannot take it all up as water vapor and condensation will occur.

The Relation of Humidity to Temperature. Before discussing the changes which take place in the humidity of the hive it may be best to take up some facts concerning the moisture content of the atmosphere as influenced by temperature. It is of course well known that if warm moisture laden atmosphere is cooled its capacity for water vapor is decreased and moisture is condensed. This is shown in the condensation of moisture on the outside of a glass of ice water. Similarly we have condensation on the surface of the leaves which we call "dew" if the moisture remains liquid and "frost" if it is frozen as it condenses. These phenomena are duplicated in the bee hive and bee cellar.

The problem of the bee-keeper is to eliminate this moisture, which leaves the body of the bee in the form of water vapor, without condensation. This has been done in cellar wintering (1) by raising the temperature of the outer air, (2) by drying the air (as by the use of unslaked lime in the cellar), or (3) by causing the air to move so that as the atmosphere becomes laden with moisture it is replaced with other air capable of taking up more moisture.

To determine by weight the actual amount of water in the atmosphere is difficult in ordinary practice and the usual method is to determine the relative humidity, that is the amount of moisture in the atmosphere compared with the maximum which might be held at that temperature. The common method is by the use of the wet and dry bulb thermometers, to determine how much the wet bulb is cooled by evaporation. Then from this data the relative humidity is obtained from prepared tables.

To make clear the relation of the relative humidity to temperature it may be well to choose a few examples. For the first case, there may be assumed a cluster temperature of 60°F. (barometer, 30 in.) in an atmosphere which is fully saturated. In this event the slightest cooling will cause condensation and the wet bulb in such an atmosphere (if it could be circulated rapidly) would show no cooling. No evaporation can occur as the atmosphere cannot take up any more moisture. If, however, the wet bulb can be cooled at this temperature the relative humidity is less as the readings of the wet bulb thermometer are lowered. The temperature to which an atmosphere must be cooled to produce condensation is known as the "dew-point". This is also lowered as the humidity decreases. These points are illustrated in the accompanying table:

Assumed cluster temperatures.

Dry bulb	Wet bulb	Dew point	Relative humidity
60°F.	60°F.	60°F.	100 per cent
60°F.	58°F.	57°F.	89 per cent
60°F.	56°F.	53°F.	78 per cent

Assumed cluster temperatures.

Dry bulb	Wet bulb	Dew point	Relative humidity
60°F.	54°F.	49°F.	68 per cent
60°F.	52°F.	45°F.	58 per cent
60°F.	50°F.	40°F.	48 per cent
60°F.	48°F.	35°F.	39 per cent

With such an assumed temperature of the cluster (60°F.) only the highest relative humidities would show condensation in an atmosphere in which such a cluster temperature would be found, for such a cluster temperature could occur only when the external temperature is above 57°F.

If different temperatures are assumed for the cluster (all of which have been observed under different conditions by various investigators) the relative humidity of the warmer atmosphere which will show no condensation when cooled to cellar temperature is given in the following table (barometer, 30 in.).

Assumed cluster temperatures.

Dry bulb	Wet bulb	Dew point	Relative humidity
60°F.	52°F.	45°F.	58 per cent
65°F.	54°F.	45°F.	48 per cent
75°F.	58.5°F.	46°F.	35 per cent
96°F.	66°F.	45°F.	18 per cent

In this second table the numbers are chosen so that the dew-point is practically 45°F. in all cases, assumed as an average cellar temperature. It appears that a given amount of water given off by bees at 96°F. creates a much lower relative humidity (18 per cent) than the same quantity of water at 60°F. (58 per cent) because the warmer atmosphere is capable of holding more water vapor, and relative humidity is simply an expression of the percentage present compared with all that the atmosphere can hold. However, to maintain a temperature of 96°F. necessitates the consumption of much more honey and this in turn gives off much more water vapor. Consqeuently with a cellar temperature of 45°F. we should expect much more condensation in a colony with a cluster temperature of 96°F. than in one with a cluster temperature of only 65°F., except that the increased heat would tend to produce stronger currents of air in the hive which might relieve the situation somewhat. Since 96°F. is about brood rearing temperature it is partly indicated why brood rearing during the winter confinement may be highly injurious, as it is usually held to be. It may be stated that a cellar temperature of 45°F. and a cluster temperature of 60°F. might not occur; the other temperatures used in the table might well occur under different conditions.

In making determinations of relative humidity it is necessary to take into account the barometric pressure but in any given locality the changes of the barometer are so small as to be negligible and therefore need not be discussed here. In any event in using wet and dry bulb thermometers the conversion table used must be for the right barometric pressure.

A further word of warning concerning the use of wet and dry bulb thermometers may not be amiss. To obtain accurate results the air must be moving past the bulbs at the minimum rate of 15 feet per second and if this is not occurring naturally the thermometers must be whirled at a corresponding rate. Unless this is done the readings are entirely worthless. Great care must be taken not to read the wet bulb thermometer until it registers as low as it will fall. It is therefore obvious that wet and dry bulb thermometers hung in the bee cellar and not whirled give no reliable data as to the relative humidity of the cellar. Many bee-keepers thus use them incorrectly.

How Moisture Escapes from the Hive in Winter. During the summer when nectar is being ripened into honey, great quantities of water leave the hive in the form of water vapor. During this period the hive is being well ventilated by fanning bees so that the atmosphere is changed rapidly and, being warm, is capable of taking up more moisture than is the atmosphere of the bee cellar. In winter when the bees are in a cluster this ventilation by fanning does not occur. The amount of water that must leave the hive is much less than in summer but on the other hand it either must pass out in air set in motion by changes in temperature or will condense on the frames, combs and hive and possibly run out by gravity.

If the atmosphere of the bee cellar

is heavily charged with water vapor, as is frequently the case, that within the hive must be saturated. The additional water produced by the bees will therefore condense and run out the entrance. It frequently happens that the air inside is saturated while that outside is capable of taking up this moisture again by evaporation, so that there may be no water visible except within the hive, most often on the cover, and possibly also on the bottom board.

If the wooden cover of the hive is loose or if the hive is covered with some absorbent or porous material, the heat escaping from the cluster may cause the formation of slight upward air currents which will carry the moisture out the top in the form of vapor. Out of doors there may be condensation of moisture in the porous packing more rapidly than it can be carried off by evaporation, in which case the packing becomes wet and usually thereby less effective as a non-conductor of heat. With sealed covers the moisture must pass out the entrance and this may also occur in the form of vapor if the outer air is of sufficiently low relative humidity to take up all the water as it comes outside.

One of the much discussed questions among bee-keepers is whether it is better to have the wooden cover of the hive sealed tightly by the bees with propolis or whether the replacing of the cover with an absorbent cushion to take up the moisture does not keep the colony in better condition. The usual method of providing upward ventilation is to place several thicknesses of absorbent cloth or other absorbent material over the frames, over which is placed suitable packing material. Out of doors care must be taken to have the cover waterproof so that the packing and absorbent material will not become wet from rain or snow. Another method used to a considerable extent in New York state is to have a small hole in the front of the hive through which the moisture laden air may escape.

If the temperature of the inside of the hive, not in the cluster, is low and the humidity of the air which escapes from the cluster is high, this moisture will not escape from the entrance without condensation. In such a combination of circumstances it is obviously advantageous to provide an avenue of escape. This the upward ventilation and absorbent cover does. The late W. Z. Hutchinson who had unexcelled opportunities for studying bees in winter in North Michigan says "Those bee-keepers who have been the most successful in wintering their bees out of doors in the higher latitudes have, so far as I know, given upward ventilation through some kind of packing material." Coggshall refers to the severe winter of 1880 when in his region (Groton, N. Y.) the temperature remained below 0.0°F. for three weeks in January. Three-fourths of the bees in New York died and he lost half of his. Those saved had been packed with burlap or carpet over the frames over which was four to six inches of dry sawdust. Bees in box hives died unless the boxes had a hole for flight half way up or were cracked so that moisture could escape.

On the other hand it is frequently observed that colonies in box hives sealed inside by the bees often winter better than colonies in hives with movable frames carefully packed. The majority of box hives are much higher than they are wide. This enables the bees, by going toward the top, to keep the temperature of the combs about them high enough so that moisture does not condense and furthermore there are frequently cracks to allow the escape of moisture.

In situations where the temperature of the combs and hive does not often reach the point of condensation or if a low temperature is prevented by packing, a tightly sealed cover can do no harm and many bee-keepers report success in wintering bees in such conditions. The attributing of differences in manipulation and methods to "locality" has been greatly overdone by bee-keepers, particularly since they usually do not describe the characteristics of the locality or analyse their conditions to determine why certain things prove best. This peculiarity in the bee-keeping literature is probably largely to blame for the discussions on the virtues of upward ventilation. It should be borne in mind, however, that, while sealed covers may be harmful in colder regions, upward ventilation is not objectionable in warmer regions. A careful study of the methods em-

ployed by the bee-keepers who winter their bees most successfully would probably show that the quotation given above from Hutchinson is correct.

Effect on the Humidity of Changing the Outside Temperature. Any change in the temperature of the bee cellar may affect the humidity of the air in the hive in two ways. As the optimum cellar temperature is approached, the heat produced by a normal colony will diminish and this decreases the food consumed and consequently the water produced. The widely varying reports of the food consumed by bees in cellars find their explanation chiefly in the difference in the temperature of the cluster. As the cellar is cooled below the optimum not only is there more water produced but the cooler atmosphere is incapable of holding so much and there is therefore an augumented cause for condensation.

In this connection it may be of interest to record a few observations made by one of the authors on bee cellars not long since. The first cellar was away from any house, was ventilated by the sub-earth system and was without any artificial heat. The temperature of the air at the floor was 40°F. and in the center of the cellar, 41°F. There was little circulation of air, and moisture had condensed freely in the chamber above the cellar proper, under the roof. In this cellar were 98 colonies in 24 stacks. Of these, condensed moisture was seen on the bottom boards of 21 in the bottom tier, 11 in the next tier, 3 in the third and 6 in the top tier. There was no condensed moisture on the floor. The only adequate explanation for the greater number of wet colonies in the lower tiers is the slightly lower temperature at the floor. If, now, there had been more ventilation provided without greatly lowering the cellar temperature, this moisture might at least have reached the chamber above the cellar before condensing and doubtless if the temperature could have been raised a couple of degrees all of the condensed moisture would have disappeared from the bottom boards. There might still have been condensation on the covers, where it first appears, but this too would doubtless have evaporated at 45°F. with good ventilation.

In a second cellar where the temperature was 45.5°F. at the floor and 50°F. six and one-half feet from the floor, there was no condensed moisture in any of the 93 colonies. Here the ventilation was much more abundant and the cellar was artificially heated. In a third cellar, temperature 40°F. five feet from the floor, there was moisture on several covers but none on the bottom boards. The ventilation was excellent. In a fourth cellar temperature 52.5°F., no condensation was observed even on the covers. It therefore appears from these few observations that in the two cellars at 40°F. the moisture was more in evidence in the poorly ventilated cellar and that when the temperature was raised to 45.5 or 52.5°F. no condensation occurred. In this connection it should be remembered that the cellar temperature is often higher than that of the outer air, thus giving the atmosphere a greater capacity for water vapor. For example, if air comes from the outside at 0.0°F. into a cellar where it is warmed to 45°F. its capacity for moisture is increased thereby almost eight times (barometer 30 in.) so that even if the atmosphere at 0°F. is saturated it is capable of taking up much more moisture when it reaches the cellar temperature. Moist air passing from the cellar will often cause frost to form about the ventilating holes.

The only conclusions that can safely be made from the data on these four cellars is that concerning the capacity of the atmosphere for water at different temperatures. Other factors entered into the wintering of bees in these four cellars so that probably no reliable conclusions could be formed from data as to the food consumed by the various colonies, even if these were available.

In discussing the condensation of moisture in the hive and the various methods by which it may be avoided, one must not lose sight of the fact that little is definitely known as to the effects of such condensation or of a high relative humidity on the wintering of bees. From the experience of numerous bee-keepers there is justification for concluding that bees winter better in the dryer cellars but it is not so clear whether this statement would hold true for all cellar temperatures. In most systems of cellar ventilation the object accomplished is not so much to provide oxygen for the bees as to eliminate the exhaled moisture

without too great condensation. The amount of oxygen needed to oxydize a couple of pounds of honey per month is not great. Even in a cellar in which a ton of honey is consumed during the winter, as in the theoretical case cited, sufficient oxygen would probably get in without any special provision for ventilation. This is not true for the elimination of the water, however.

In discussing the exclusion of moisture from the hive it is necessary to bear in mind one other hiding place for moisture, usually overlooked. In hives where condensation is common the hive and cover often become saturated and sufficient moisture may be held in this way that it comes through and blisters the paint on the outside surface of the hive. It is clear that, on account of this absorption of water by the hive, many records of weights on the removal of bees from the cellar fail to give accurately the loss in weight by the consumption of honey and the death of bees. Much honey finds its equivalent in the water in the soaked hive. Before drawing any conclusion as to the honey consumed we must be sure that condensation or evaporation do not affect the weights of parts assumed to be constant. A reverse example of this phenomenon is to be found in some records made of the weight of a hive and combs (without bees) made recently. The hive lost weight constantly by evaporation when placed in a dry room.

Effects of Humidity. It may as well be stated that we have no data showing the effects of an increase or decrease in the relative humidity on the activities of the bees in winter. We therefore do not know what relative humidity is best, for we do not know whether the moisture is the cause or the effect of poor wintering. From practical experience it may be concluded that excessive condensation is indicative of poor wintering and most bee-keepers aim to have their cellars as dry as practical. Whether this is desirable for the warmer cellars remains to be determined.

Elwood falls into a common error, in which he is probably accompanied by many bee-keepers, when he states that a damp cellar at 45° to 50°F. is no warmer than a dry cellar at 38° to 40°F. This conception arises from our personal experience that high relative humidity gives us a feeling of chill. There is no evidence that bees with very different exteriors are so affected.

At any rate it is evident that condensation of moisture on the combs of honey is not beneficial since this favors the growth of molds. The damp, dark interior of the hive is certainly favorable for the growth of these organisms. It is not yet shown how these are injurious but they can scarcely be assumed to be desirable as food. A still more serious consideration is the fact that honey tends to take up moisture either from a highly saturated atmosphere or from water condensed on the surface of the comb. This dilution of the honey often leads to some fermentation, injuring the honey as a food.

Dr. Phillips exhibited Chart and had some discussion on same.

(Pres. Baxter resumes Chair.)

Pres. Baxter—Mr. Chairman, Ladies and Gentlemen: Your State Inspector of Apiaries, Mr. Kildow, and myself, visited the Auditor, Mr. Brady, and also the Secretary of the State Legislative Bureau, in regard to some legislation which is proposed this coming winter, and we found that this Bureau was a good thing, and we want to give them all the information concerning our work that we possibly can and make it as strong as possible.

Then we found out that there is another Bureau, called the Bureau of Efficiency and Economy, consisting of a President and five Commissioners, each one of whom receives a salary of about $1,500 a year. Their purpose is to combine all the Associations in the state, that are receiving appropriations, into one body under their control. They are to ask each one of these Associations to make out a yearly budget of their requirements, specifying for what purpose every penny is to be used, making an itemized account, so much for postage, so much for salaries, so much for traveling expenses, so much for this and that, and they will ask for the appropriation direct themselves without the aid of any of the Associations, and after receiving the appropriation they will distribute this appropriation as they see fit to distribute it, and each society that receives any of the appropriation can only use it for specific purposes that they mention in their budget—so that, if you put down $100 for postage and

only need $1.00, the other $99 has to go back into the state treasury.

Now, then, Mr. Brady, who is the State Auditor, we find is opposed to this. It is going to give the Governor a mighty strong political pull and that is what it is for. He will be absolute monarch of everything in the state, and Mr. Brady advises us that we can see for ourselves that it is to our interest to steer clear of this, and therefore, as I urged in my annual report—I believe a Committee should be appointed to co-operate with these other Associations in fighting this commission. I believe the Bureau of Information to be a good thing but not this Bureau of Efficiency and Economy. I believe we should appoint a committee—and yesterday I recommended that your Executive Committee be named to co-operate with these other Associations, and I would repeat that recommendation again today. I would say: Put the strongest men you have on that Committee.

Mr. Stone—Mr. Chairman, I would like to say here, while there is a little lull,—The Secretary of the Peoria Association of Commerce has asked this Association to come to Peoria and hold their next meeting. This is the second or third time they have applied for the holding of this meeting at Peoria; the only way we can satisfy them is to tell them that our charter fixes the place of meeting—at Springfield—and then they are satisfied. I just say this to show you they are all after us.

Pres. Baxter—The hour is now getting late; it is time now for our election, and, before we proceed with the election of officers, I will appoint three tellers—Dr. Baxter, Mr. King and Mr. Kelley.

Pres. Baxter—If the tellers are ready —we will proceed with the nomination for President.

Mr. Stone—I want to say that we have never had a President who has helped the Secretary any more than the present incumbent of the Chair. I nominate Mr. E. J. Baxter for President for the coming year.

Motion seconded and carried. No other nominations being made, the nomination for President was closed and the Secretary was instructed to cast the ballot for Mr. E. J. Baxter for President for 1915.

Mr. Baxter—Ladies and Gentlemen, I thank you very much for the honor conferred; I shall try to do in the future as I have done in the past; do my very best for the welfare of the society and promotion of the industry not only in our state but throughout the country. I believe the next thing in order will be the election of five Vice-Presidents.

Mr. Kelley—I move that we write five names on a ticket and the five receiving the highest number of votes be declared elected.

Motion seconded and carried.

The following Vice-Presidents were duly elected in the order named.

Mr. W. B. Moore;
Mr. Aaron Coppin;
Dr. A. C. Baxter;
Mr. H. C. Dadant;
Mr. J. W. Bowen.

Pres. Baxter—The next thing in order will be the election of Secretary.

Mr. Coppin—I nominate Mr. James A. Stone as Secretary.

Mr. Moore—Mr. Chairman, I move that the nominations be closed and the President of this Association be instructed to cast the ballot for Mr. James A. Stone as Secretary for 1915. It was so ordered and Mr. Stone was elected Secretary.

Mr. Stone—I cannot make a better speech than to say, thank you.

Pres. Baxter—The next in order will be the election of Treasurer.

Mr. Moore—I make a motion that Mr. Becker, our present Treasurer, be nominated for Treasurer for 1915.

Motion seconded and carried and Mr. Charles Becker duly elected Treasurer.

Pres. Baxter—I believe that closes our list.

Mr. Becker—Mr. President and Members: I am very much obliged to you for the honor you have conferred on me again. I always have made it a practice if I got an order for money on one train to get it out on the next train and I shall endeavor to do the same thing; your money is always ready; I never use a cent of it; as soon as I get an order I send a check.

Mr. Stone—I would like to say that an order never lies in Mr. Becker's hands very long; he always sends a check immediately.

Mr. Moore—Mr. Chairman, as we will probably have some important

legislation concerning our interests during the next season, I would like to make a motion that the Executive Committee (the Vice-President and Secretary of most Associations are considered the Executive Committee), with the five Vice-Presidents and Secretary of this Association, act as the Legislative Committee, with authority to call on any member of the Association that they desire to help before the legislature or on any work concerning legislation.

Mr. Dadant—I don't believe we want so many; I believe Mr. Moore said he thought we should have the President, the five Vice-Presidents and the Secretary; I believe we should put that in the hands of, say, three men.

Mr. Stone—The Executive Committee are the President, Secretary and Treasurer, by virtue of their offices.

Mr. Dadant—I believe we should have the President, Mr. E. J. Baxter, of Nauvoo, Illinois; Mr. James A. Stone, Secretary, Springfield, and Dr. A. C. Baxter, one of our members at Springfield (for our Legislative Committee). Dr. Baxter is right here in Springfield and knows a great many of the men here; he has lived here a good while; he and Mr. Stone are here all the time. Mr. Stone has taken care of a great many of these little things and it is a burden on him, and Dr. Baxter is willing to serve on this Committee, and I believe he would be a valuable man to have; he is a man in whom we can have confidence.

Mr. Dadant—I make a motion that we name our President, Mr. E. J. Baxter; our Secretary, Mr. Stone, and Dr. A. C. Baxter to make our Legislative Committee: I don't think we could possibly do better.

Mr. Kildow—I second the motion.

Mr. Moore—I will withdraw my motion.

Pres. Baxter—You have heard the motion that your President, your Secretary and Dr. Baxter constitute the Legislative Committee for the ensuing year, with power to appoint others in case they need any assistance; do you accept that? Are you ready for the question? All those in favor say, aye; contrary, no.

Motion carried.

Pres. Baxter—Now, Ladies and Gentlemen, there is another important committee that was spoken of in the address yesterday, that is, a committee to co-operate with committees of other associations—"And still another very important matter that I wish to call your attention to is the necessity of co-operation between the various Public Industrial, Educational and Philanthropic Associations of the state in matters of general interest, and as a means to that end I would recommend this association mtotgVflhmhmhmhm that this Association name a committee to work in conjunction with committees of other Associations with that object in view."

A motion to that effect will be in order.

Mr. Moore—I make a motion that the Legislative Committee be authorized to co-operate with Committees of other Associations in regard to matters pertaining to legislative business.

Motion seconded and carried.

Pres. Baxter—There is another matter I want to bring to your attention, and that is in regard to setting a day for our next annual meeting. We want that day left open as much as possible so that we can co-operate with Societies of surrounding states, forming a circuit, so that we can have speakers of prominence attend one meeting and then the next and so on, that we may get as much valuable information at as little possible expense as can be done, and if you see fit to allow your Executive Committee to choose, a day we will so arrange matters that we may co-operate in that way. What is your pleasure in the matter?

Mr. Kildow—I would suggest you leave that to your Committee, and at the same time I would suggest that you miss the Odd Fellows' day; to get in the circle is a good idea all right.

Mr. Bowen—The Odd Fellows are an awfully nice lot of people but we do hate to have them crowd us out of bed; we used to take advantage of the Odd Fellows' week because we got reduced rates; that is a thing of the past; we don't have to tie ourselves down to Odd Fellows' week.

Pres. Baxter—I believe the suggestion is good, and if you leave it to your Executive Committee we will do everything in our power to have it at a convenient time.

Motion seconded and carried.

Mr. Stone—The Executive Committee were instructed last year at our meeting to set a day and, when we considered everything, they left it to the Secre-

tary, and I said right then at the meeting: "The Secretary will put it the week of the Odd Fellows", and it was their fault if they allowed it to be put that way just as much as the Secretary's; and if it is left with him this year he will be in favor of that again. Our President came with the Odd Fellows. Any one who came to the Bee-Keepers' convention on Thursday could find plenty of room; all the hotels were cleaning out and we could get any place we wanted, and for our meeting we do not want anything any earlier than Thursday, I believe.

Dr. Phillips—I might say that at Ames, Iowa, we got together; a few bee-keepers were there from other places; Mr. C. P. Dadant was there from this state, and Prof. Yaeger represented Minnesota, and Mr. Bartholomew represented Iowa, and we talked the thing over and decided it would be well for some one present to get the dates of all these meeting days together, so we asked Mr. Frank C. Pellett of Iowa to get suggestions and consult the different Associations, and plan the dates of meeting, submitting them to the different Societies.

I would suggest that you get into communication with Mr. Pellett early so that he will have plenty of time to correspond back and forth and get the circuit complete. I think we can have five or six men going around by next year even.

Mr. Stone—Would he put the day about this time of the year?

Dr. Phillips—He wants suggestions on that score. The Iowa people are a little bit in favor of a later date. Next week is the Wisconsin meeting; a week after that the Minnesota and Michigan Bee-Keepers meet; a week after that, in Missouri; a week after that, in Kansas.

Mr. Stone—I move, Mr. President, that it be left with the Executive Committee to correspond with Mr. Pellett.

Pres. Baxter—The motion is made that the fixing of the date of the next meeting be left with the Executive Committee, and Mr. Kildow suggested that it be not in Odd Fellows' week.

I assure you if you leave it with your Executive Committee they will fix the date and not Mr. Pellett, but they will do so in conjunction with Mr. Pellett, so that it will be satisfactory all round; so far as settling it for Odd Fellows' week, I don't know about that; I was much in favor of it last year, but this year I had difficulty in finding a room; I finally found one and paid $2.00 for a $.50 room, and afterwards I found plenty of rooms.

All those in favor of the motion say aye.

Mr. Stone—If we fail to have it the week of the Odd Fellows, we will find the Hall in this position: if they go to work and take out the chairs they will not want to put them back. I would suggest that if we can get our meeting immediately following the Odd Fellows we do so and we can then probably have this room to hold it in.

Mr. Bowen—I would rather that you have it much later; for the last three years I have not been able to attend at this time of the year.

Pres. Baxter—All in favor of the motion say aye. Contrary, no. Carried.

Mr. Stone—I want to impress on the meeting that at 11:45, fifteen minutes before 12, we are to go to the north front of the State House and have our group picture taken.

Pres. Baxter—We have a report we want to hear of our delegate to the National Convention last February, Mr. Moore.

Mr. Moore—Mr. Chairman: I have not a very extensive report to make because the main business of the Convention was taken up formulating plans for the re-organization and incorporation of the National, and in formulating a new Constitution and By-Laws; we worked at that almost the entire time of the Convention. In fact there was not a night we were there that we got through before 12 or one o'clock.

There was considerable dissatisfaction manifested in the early part of the Convention among the delegates and members in regard to the buying of the Review. They were dissatisfied with the deal that the Directors made with Mr. Tyrrell in getting the Bee-Keepers' Review; finally a sub-committee was appointed, of which I was Chairman, to discuss the matter fully and make recommendation to the association in regard to it. We thrashed the matter out one night until after midnight and the next day I made a report, as follows:

"We, your Committee on Publicity, recommend that this Convention take action authorizing the Directors to dispose of the Review to the best advantage to the Association."

I have not a copy of the Constitution and By-Laws as we talked them over at that meeting but I think that most of you saw the last number of the Review and saw the proposed Constitution and By-Laws, also the new amendments. In them you will notice this recommendation that our Committee made, that they dispose of the Review at once, which was not carried, but a motion was made and an amendment made to that motion providing that the Board of Directors arrange for three or four purchasing agents, said agents to be subject to the Board of Directors.

Practically all the business we did during the time was the formulation of this Constitution and By-Laws. There was an attorney present at some of our delegate meetings, a friend of Mr. Frank Pellett, who gave us some very good information in regard to incorporation and the Board of Directors, not the Board of Directors, but the President, Vice-President and Secretary, were authorized to proceed with the work of incorporation by delegate meeting.

They have been unable to do this work as the National has no money, as you all probably know; there has been some money derived from the sale of supplies and a small portion of that has been used for the Association; the National Association as a body has no funds. We had no funds to pay a lawyer to draw up incorporation papers or fees or anything of that sort, so nothing can be done with that.

As you know the proposed Constitution provides for a membership fee of all belonging to the National of $2.00 a year—$1.00 of which to be used as a subscription for the Bee-Keepers' Review; the other to go into the National Association for expenses.

The National Association as a body has to have funds. Under the old way of running it could not be a success. If the National is to continue, we have to have a reorganization and the only way to have that is to adopt a new Constitution and By-Laws, and become incorporated under some state, then we will be in shape to do business as a lawful body.

As it is now, you take the buying of the Review, three Directors at the time they took this Review over from Mr. Tyrrell signed this contract, and really those three Directors are responsible at the present time for the debt of the Review; but of course the National Association stands back of it, as a matter of public policy as much as anything.

The Association is not directly responsible for the Review debt, but in a moral way we have to stand back of those Directors. I do not admire the work of the three Directors we have put in nor of our Secretary, and I do not think he is doing right in regard to our Association, to comment upon; one is, we found the conditions of the National in a deplorable state. They have no money, and furthermore the Constitution and the By-Laws were conceived and adopted as a one man rule for certain specific purposes, in my judgment. That is a pretty strong statement and I am ready to stand back of it. Mr. Tyrrell did not do the fair thing by this Association and those three Directors who voted for the purchase of the Review did something that they were not authorized to do, and, as we have not objected to it, therefore we stand responsible for it. There has been a debt created that every member of the National is responsible for, and whoever holds that debt can not only begin suit against the officers but he can begin suit against any one individual member of the Association that he sees fit to and may get a judgment against them.

A number of the members present saw it in this light; one was Mr. Holekamp of St. Louis, who absolutely refused to continue a member of the Association unless they disposed of the Review and the buying of supplies.

Dr. Bohrer of Kansas was another one—and Dr. Gates, when he was elected President, said he would not take the Presidency if it continued under the conditions then existing.

Now, then, what are you going to do about it? It is going from bad to worse.

We went to work and authorized the incorporation of the Association and we formulated a Constitution under which it should be governed and we authorized a committee to go to work and incorporate it but we did not provide the funds; we had no funds and therefore it has not been done, and it has been going on just as it has heretofore and it probably is increasing.

We could not get any definite statement from the Officers.

Mr. Stone—Secretary Williams was ill in bed for a long time; you must make allowance for that.

Mr. Moore—A number of those points will have to come up before the delegates' meeting in Denver. I think the only thing we can do at this time is to discuss the situation and instruct our delegate, so as to make the National a success. We cannot do without a National Bee-Keepers' Association and the only thing is to get it on a basis so that it will do the most good to the greatest number of people.

A lot of us are objecting and say we get nothing out of the National Association.

I admit, under the way it has been run for the last few years, bee-keepers as a body have not gotten much out of it—but it is up to us to change it, and we should stay with it and work to the end of making it a success; we should improve the conditions of the National Association and it can be a power of good to all members.

Mr. Kildow—It seems to me that the most vital thing is this: What good are we getting out of it? What good is it to us? You say you are getting up a new Constitution; if that is no better than the old one, you had better not get it up; you had better not get up any more Constitutions; we have not gotten anything out of the old one for two years.

Mr. Moore—Did you read the new Constitution in the Review?

Mr. Kildow—No. I got down on it, so I do not read it.

Pres. Baxter—The question—What we are to get out of the National as reorganized—will come up this afternoon. I was present at the meeting of the National Association, and Mr. Moore has given the substance of what occurred but there are some things that I want.

We know that Mr. Townsend has been selling supplies. He admitted that he had made a certain amount of money approximately — I think something like $700, but he has not accounted for a cent of it, and we don't know where the money went to; the Treasurer has never received it—and there are lots of other things going on that we know nothing about at all.

This afternoon this subject will be discussed and we want you to consider it thoroughly so that we will know where we are at.

Mr. Stone—Mr. President, I want to say in answer to what Mr. Kildow said, not considering what the President has said as to the condition of the National: As to the Review I would be willing to give a dollar for just that page that advertises honey for sale, and I have not advertised any honey for sale either, but if I want to buy some honey in a year like this I know just where to go for the particular kind of honey I want to buy.

Mr. Kildow—We got that same thing from neighbor France and it didn't cost us one cent, either.

Mr. Stone—But we are not entitled to it unless we are members of the National.

Pres. Baxter—This will come up this afternoon under special subjects.

Mr. Moore—It is now ten minutes of 12; I move we adjourn for dinner, to meet at one o'clock sharp.

Motion seconded and carried. Meeting adjourned until one o'clock.

AFTERNOON SESSION.

November 20, 1914.

Meeting convened at 1:30 o'clock, President Baxter in the Chair.

Pres. Baxter—Has the Committee on Resolutions anything to offer?

Mr. Bowen—We have nothing as yet.

Pres. Baxter—Ladies and Gentlemen, Members of the Illinois State Association: We will take up for the present the suggestion in regard to summer field meets; it was suggested that we hold from three to six meets during the next summer in different parts of the state, including the one which is already partially prepared for, at Hamilton.

These field meets are of great importance. We can get more bee-keepers probably together from different localities than we can get together in any other way and we can do good and efficient work. By having a meet at some apiary we can do administrative work and discuss almost any subject we want, and I think these meetings are of great importance.

I recommend from three to six of them including the meet at Hamilton.

Mr. Kildow—There are two that are already being held, one at St. Anne's, which is rather a permanent one, and last summer when we had a meeting at Rockford it was arranged for an an-

nual gathering there, so those two need hardly be looked after, but in parts of the state we need some field meets.

These field meets are as essential as these meetings. We do more business here, but there, the bee-keepers get together and discuss topics and get ideas, and I know from experience I have had that they are very good, and are something we ought to have.

I was not able to get to any more this fall. I think the idea of having a committee look after these things, and confer with parties in different localities, will be of great help.

Pres. Baxter—Has any one else anything to offer?

Some of you who were here last fall will remember that Mr. Duby was very anxious to have the Illinois State Association take up the question of holding field meets and send one or two men to help them along at St. Anne and different places where we might decide to hold them. If we decide to have these field meets, they will be very glad to have our assistance and help conduct the meetings for them. If we decide to have three or four meets we can include these two as well as others for which we can make provision.

If you see fit to do so and desire these meets it would be well to make a motion authorizing the Executive Committee to have as many as you see fit, or give to them the privilege of using their discretion as you see fit, and the meets will be provided for and plans made to carry them out.

Mr. Coppin—How is it about those meets? Does it cost the Association anything?

Mr. Baxter—It has not so far, but if this Association takes hold of it it will cost them something. Somebody has to take charge of these meets. You will have to designate one man, either your President or Vice-President or somebody to look after these meetings. In Iowa last year they were conducted by Mr. Pellett, President of the Association. I think they had seven or eight of them. I attended two of them and found it very profitable; they have a pretty good attendance, all of them, and I think they do a good deal of good. Don't you think so, Mr. Moore?

Mr. Moore—They are a very fine thing.

Pres. Baxter—In my recommendations, I recommended that you have one man take charge of these field meets; I named the President; I didn't know I was to be the coming President. I provided that he receive no pay whatsoever except actual expenses.

Mr. Kildow—I think whoever was at the St. Anne Conventions would say that, next to this meeting, they had the largest attendance and interest. We have a thousand dollars to spend for the education of the bee-keepers and for promoting the cause. Why not spend it in some field meets, in that way? In this way we can work up successful field meets; we will get more members and create more of an interest and it will be a help to us in this state meeting.

Mr. Hoyne—I am one who went to St. Anne; I went there before your last year's meeting; they had quite a meeting there, but no leader, but they went out to the apiary, and there is where I learned about foul brood, first. We had an example there in the hive. We marched out to the apiary everywhere they met and we profited by doing this very greatly. I think we had such a meeting probably as you have here, just about such a meeting in number.

Mr. Kildow—The St. Anne meeting was larger than any I ever saw here; there were about 75 there this year.

Pres. Baxter—Do you want to take any action in the matter?

Mr. Moore—I make a motion that the Executive Committee,—that the President—arrange for a series of five field meets during the coming season, including the one at Hamilton. As I was appointed at Mt. Pleasant to handle the Illinois end of it I will transfer it over to the President, so that he can go on and look after that along with the rest.

A member—I second the motion.

Pres. Baxter—I would rather it would be left with the Executive Committee and, if you wish your President to manage them, that will be all right.

Mr. Moore—I think it would be better; it takes too much time to write back and forth with other members of the Executive Committee; I think the President can keep in touch with the Foul Brood Inspector and arrange what is best. In case there is one in my neighborhood I can go and help, and any one else can do this.

Mr. Stone—Mr. President, would it not be well to place the number at two to start with, and not five?

Mr. Kildow—There are three already, now.

Mr. Werner—Mr. President, I would like to see one as near to Springfield as possible because I am so far south there is no one interested down there but myself, and if we could get a good meeting, at Mr. Stone's place this summer, I would have a chance to meet.

Pres. Baxter—You have heard the motion—What is your further pleasure? Are you ready for the question? All those in favor of the motion, signify it by saying aye—

Motion carried.

Pres. Baxter—If you want your President to take charge of these meetings he is willing to do so without any compensation; how about his expenses attending these meetings, is that understood?

Mr. Moore—That is understood to be a part of the Association expense; and when he calls on any one their expenses are to be paid out of the Association fund.

Pres. Baxter—We will listen to Mr. Gates' paper on: "Interests and Workings of the National Association."

See Dr. Gates' picture as President of National—back part of book.

INTERESTS AND WORKINGS OF THE NATIONAL ASSOCIATION.

(Dr. Burton N. Gates, President National Bee-Keepers' Association, Amherst, Mass.)

Dr. Gates—I have no paper. Will you please give me some information as to what you desire? As I have just said—I have no remorks or comments to make unless you have questions to ask me. Just what is it you would like? I am a Yankee in that respect.

Pres. Baxter—We would like to know how the Association has been going on in the past year or two.

Dr. Gates—I think you know as well as I do.

Pres. Baxter—We would like to know how the Association is run, what benefit the National is to the State Associations.

Dr. Gates—I always figure that a man gets benefit out of any Association he joins only in so far as he puts himself into that Association.

Mr. Stone—I would like to ask Mr. Gates if any individual member of the National is responsible for any part of the indebtedness of the National.

Dr. Gates—Not being a lawyer, I cannot answer that question.

Mr. Moore—Mr. Chairman: In regard to that question you will find the National Association has no standing in law. They are not incorporated; if we were incorporated under the law, then they could come on to the Association as a body or individually foi debts, but under the present standing there is nobody responsible for the debts of the Association except those that contracted that debt.

The debt against the Review is only one that can be held against those Directors who made the deal. They cannot hold anybody else for it except those Directors.

Pres. Baxter—What other questions do you wish to ask, Mr. Gates?

Dr. Gates—I am perfectly willing to say, Mr. President, I don't care to aggravate a discussion here. It cannot end in any great profit for the National, and moreover I cannot see that it will materially benefit you, but if theer are specific questions coming to mind I will try to explain the situation. Remarks in full explanation of the St. Louis meeting were made this morning and you are all acquainted with that.

Mr. Moore—Mr. Chairman, as I took quite an active part in the St. Louis meeting, I can perhaps give a little light on the subject. The National has no money. You all know, or, if you have read the Constitution and By-Laws that it is proposed to be adopted by the National, you will see that it is provided there for membership fee. If we stay with the National as an affiliated body and elect a delegate to the Denver meeting and this Constitution and By-Laws are adopted, there will be some fees coming in that can be used for the purpose of incorporation; and this will give us a legal status; the National will be a legal body, and the only way that can be done is for us to stay with it.

Mr. Kildow—I understand there is a resolution for the Directors to sell this Review.

Mr. Moore—The Committee on Publicity, of which I was Chairman, reported that it would be for the best interests to dispose of the Review at

once. In the proposed Constitution there was a motion made that the National be organized as a co-operative and educational institution with power to proceed with the handling of supplies and publishing of the Review, with an amendment that at any time the Board of Directors see fit for the best interests of the Association they could dispense with the Review or handling of supplies, or both. It was the consensus of opinion of the delegates of the St. Louis Convention that it was a bad business policy. We should not have done it; it put a heavy debt on the Association.

Mr. Townsend put up such an earnest plea to retain the Review, and seemed to have such confidence that it would pay, the delegates gave him that chance.

Mr. Kildow—It appears that, up to the present time, all the benefit we got out of the Association was through the Review, buying supplies, keeping us posted and such things. If this Review is disposed of, what will we have left that is of benefit to us? There is a suggestion that we put in $2.

Mr. Moore—$1.00 of which will be for subscription to the Review. The limit of that contract has expired; we have to pay for that Review; it belongs to the National. As long as there is a National we can keep the Review. As far as I am personally concerned I think the National should maintain an official organ; the Review is our official organ; it may be kept up in a manner that is less espensive than it is today, so that it will pay and give us all the valuable information we need. That is a matter for the delegates at their meeting to regulate. We took occasion at St. Louis to suggest things in regard to matters of publication that would make the expense of the Review less. If the National, with an extra dollar for the subscription for the Review and a $1.00 fee to the National to keep them in funds, are given this amount of $2.00, Mr. Townsend seems to think in the course of time—through the sale of supplies and so on—the Review will pay out, and if we can once get out of debt, by economy in management and publication especially, I think it will not cost the Association any money; there will be enough in the subscription and advertising to pay expenses of publishing the Review and it will give the Association the benefit of an official organ.

Mr. Kildow—It seems to be very indefinite about the money derived from the selling of the supplies; according to your own say you have no report from Mr. Townsend and you cannot get a report.

Dr. Gates—I would say in that connection, in my recommendations to the delegates at the last meeting at St. Louis, my recollection is that I recommended that the Treasurer be vested with full authority to control all funds pertaining to the National. That recommendation did not meet with action at the Convention. The situation is this: Mr. Townsend handles all the money concerning the Review and trade and supply vouchers are sent through and O. K.'d at the office, but at the same time transactions are carried on apart from the Treasurer. Such conditions ought not to prevail, as any business concern would advise; consequently we are frank to admit that we do not know the profit or loss concerning supplies. That is a mere detail in the management of the organization that bothers us less than some of the far larger problems; we have confidence in Mr. Townsend's integrity; that is a mere detail in the administration; when we get officers who work together and keep in touch with each other and each knows what the other is doing, we can easily manage the matter of transference of money.

Pres. Baxter—Right there—they do not seem to want to do so. I will ask you, Have the officers in the past been in that condition?

Dr. Gates—In a measure they have; it is difficult on account of the wide scope and extent of the country.

Pres. Baxter—Is it not a fact that the officers have utterly refused to do what they were ordered to do at the St. Louis Convention last fall?

Dr. Gates—In some instances.

Pres. Baxter—Is it not a fact that the committee to whom the publication of the Review was referred advised that the sale of the Review take place at once and their report was not adopted—

Dr. Gates—Not in that form.

Pres. Baxter—Was that not the substance of it?

Dr. Gates—As Mr. Moore has already explained: the committee recommended that the Review should be disposed

of, provided it was found advisable by the Directors.

Mr. Baxter—That was done by the delegates afterwards; it was not the report of the committee.

Dr. Gates—I understand you now. The report of the committee was simply accepted and placed on file.

You need not have any fear in regard to the settlement of the Review; it will either stay or go; there will be action sure as the world.

Pres. Baxter—In what way?

Dr. Gates—I cannot prophesy; I cannot say you must sell the Review; it is for the Directors to say; you have elected your Directors; it will be discussed and action will be taken.

Pres. Baxter—It will be done provided you send delegates to the Convention next February who will oust those three Directors and put in three others; if not it will go on as it has, from bad to worse. I will say further, and I know what I am talking about, too, that this is a voluntary association, it is not incorporated; it is like a partnership, therefore every man is liable personally for all the debts of the corporation, and whoever holds a bill against this Society can pick on to any one member of the Association and bring suit against him for the whole amount if he wants to do so, and living in different states this would take place in the United States Court, and we don't know what is going to take place. They have not given us a definite statement—no books or anything to show what we are in debt for; nothing to show what we have received; we are totally at sea as to profit and loss or expenses and receipts, and our Treasurer last year received practically nothing. I don't know how it is the present year, but Mr. Dadant who was President the previous year had nothing in his hands; no money was turned over to him; the books were not even audited; there is nothing to show just where we are at, and the longer it goes on the worse off we will be.

I contend that the National as it has been organized and administered is entirely wrong. I have no reflection on Brother Gates; I think he is one of the best officers I have ever seen; it is the Directors I am blaming. The National Bee-Keepers' Association was organized for the aggrandizement of a one man power and without any view of helping the fraternity at large; that having failed, then we were left at sea.

We arrived at St. Louis without a Secretary, last February, and we didn't know where we were at at all, and there was nothing to show how we stood.

Heretofore we had a good association. We were doing some good.

Can you show me one iota of good that has been accomplished for the benefit of the bee-keepers at large since this Association has been reorganized?

Can any one show me anything at all that has been accomplished?

I would like to know what it is.

We went to work and got up a Constitution for the new organization, and we authorized the incorporation of this organization. As I said before it was not done because, as Dr. Gates has told us, we had no money to do it with, but now what has taken place? This Constitution (I don't know that there are any By-Laws) has been presented to us here for ratification or rejection or amendment. Who authorized them to do it? Not the delegates, by any means. They were never gotten up for the old Association; they were gotten up for the new Association entirely, and, the new Association having failed, I don't see why they are brought up here. We have nothing to do with them at all.

Dr. Phillips—I do not care to enter into any controversy over what the National has or has not done, but I want to say a word or two that may throw some light on the situation.

I have attended ten Executive meetings of the National Bee-Keepers' Association. I do not know whether I shall attend ten more in succession or not. I can say this, however, that a large part of the time of each of the last ten meetings has been devoted to the writing of Constitutions. I do not really know whether the Constitution has ever done anybody any good or not, but I am certainly positive that the wasting of that time, writing Constitutions at the Conventions, has not profited any one.

As we now have the National Constitution it is a delegate body but most of the delegates went there last year uninstructed by their Associations and were not able to state what the members of the National as a whole desired.

I had the privilege of representing the Pennsylvania Association of which I have been a member for a number of years, and I know the Pennsylvania Association gave me no instructions whatsoever, and I think that was the case with all of the Associations, practically.

Now I would suggest that you formulate a very brief set of resolutions and instructions for your delegate, telling him exactly what the members of the Illinois State Bee-Keepers' Association think about the future plans of the National. Instruct him to vote to support these things which you have passed in your resolutions, and to oppose those things to which you are opposed, and, if you and the other Associations will do that, it will save a great deal of the talk which we wasted at St. Louis last year.

Also, if you care to do so, you can instruct him definitely for whom or against whom to vote for the various offices which will be filled by the election of delegate vote at the next meeting in Denver next February, and if he has definite instructions he will go there and speak for you. However, if you send him there uninstructed and things do not go as you think they ought to go, the delegate is not to blame.

I hope sincerely, at the Denver meeting, there will be no time wasted on Constitutions.

I think the National Bee-Keepers' Association have had every conceivable Constitution anybody ever has had, and why they should have wasted time and made so many mistakes in writing their Constitution, and have not devoted their time to the bee-keeping industry, is a thing I do not understand.

Some one should outline for the National Bee-Keepers' Association some kind of policy. As far as I ever have been able to find out there is no policy for the National Bee-Keepers' Association. There was originally, in the original organization, a definite policy. It was organized by Mr. Newman and some others for the purpose of protecting bee-keepers in their legal rights. It has been since found that those things are not so urgent as they were at one time. It is not necessary to maintain a National organization for that purpose.

Having lost that policy, the National has assumed no policy up to the present time. They do not need a new Constitution or a lot of new officers, but they do need a definite policy for the conducting of their work in the future. That is the way I look at it, and I hope it will be possible for you to tell your delegate, who represents this Association, what you think the policy of the National ought to be, and instruct him to fight for a definite policy, whether they get a new Constitution or not.

Mr. Kildow—Just one word: Under existing conditions of the state organizations in almost all the states now—do we really need a National organization?

Pres. Baxter—Not the way it is conducted and organized.

Dr. Phillips, it is very well to instruct your servant what to do, but, before you can instruct the servant as to what he should do, you have got to have the run of your business and know what he ought to do.

Has any state Association had any opportunity of getting the run of the National Association since its re-organization?

Has there been any publication of its works, of its finances, receipts and disbursements and all such things as that, so that they could enlighten themselves so as to give definite instructions to their delegates. If there has been I have failed to see it, and that is one reason why our delegate went uninstructed.

As to policy—you know very well I was appointed Chairman of a Committee on Policy and Scope of the National last February, and I brought in a policy. What was the result? It conflicted with the interests of certain delegates, certain Trustees or Directors, and they voted down the Committee on Policy.

Dr. Phillips—And left the National without a policy.

Pres. Baxter—Because they didn't want a policy.

Dr. Phillips—They ought to have one.

Pres. Baxter—Now, then, in view of what has taken place within the past two years in the National, and the way the Directors have conducted things—are you ready to join them again another year, pay your money over and let things go on the way they are going—or would it not be better to save that money, use it here at home, and get some benefit from it

and let the National take care of itself?

No matter what way you do—the National as it is now organized is bound to die. You may prolong its life a few years; maybe only a year, but the National cannot exist the way it is being conducted.

Now, then, I believe if you are not ready to vote one way or the other, it might be well to leave it to your Executive Committee to ponder over the question seriously; get all the information they can and decide whether they want to send a delegate to the meeting next February or not.

It is going to cost some money to send one there, and if you are going to get some benefit from it send one, but, if you are not, why spend the money?

These Directors were instructed to do some specific things the past year; they have not done them. If you instruct them again to do certain things, ar they very likely to have any attention paid to these instructions by the Convention any more than they have in the past?

Dr. Gates—Get a change of Directors, Mr. Chairman.

Mr. Moore—I will say right here: There are three Directors to be elected at this Denver meeting, and I think that the chances are that we will probably get Directors in there who will change the policy as elected by the delegates. There will be Directors elected who will have different ideas of things than some of those that are at present Directors.

You spoke about a Committee on the Policy and Scope of the National—

Pres. Baxter—That recommendation was the selling of the Review; the stopping of the selling of supplies.

Mr. Moore—Committee on Publicity recommended the sale of the Review to the best advantage of the Association. This Committee or rather recommendation of the Committee gave until January 15th; then we took up the matter of Constitution.

Now that took effect over all these Committees' reports. These Committees' Reports were laid on the table and no action taken on them. They were finally discharged and no action taken on the reports..

This Constitution as it stands here was to be the policy of the Association.

Pres. Baxter—I voted as hard as I could to get rid of that Review and stop buying and selling supplies and they defeated me at every turn, and even after we went into executive session they declared we would get up a new Constitution and not amend the old one, and Mr. Moore has read here a part of the new Constitution as proposed.

You see at every point the delegates had voted that the policy of those they represented was to dispose of the Review and discontinue the purchase of supplies but they would not consent to this because the Directors wanted to continue in the same old tracks. If you leave it to the Directors are you going to be in any better position?

Did we not try to defeat Mr. Buchanan as Director as he was one of the Directors that voted to buy the Review. We took a dozen votes but did not he triumph in the end?

There were delegates at that Convention who did not know what they were voting for, or else they were in league to do certain things.

I saw just as soon as I got down there and noticed how things were going, right away, that everything had been cut and dried beforehand, and it was carried out to the letter right along, and I believe Mr. Gates will bear me out in this.

Mr. Bowen—I don't see how you can gain anything by arguing.

Supposing we send delegates to the National Convention, and after knowing the sense of this meeting they cannot carry out the wishes of the Illinois State Convention? They can do the best they know, and we will simply have to take our medicine.

Dr. Gates said he was not a lawyer and could not answer a legal question. I understand he is a Doctor, possibly he will find a remedy.

Our representative has not been elected yet.

Pres. Baxter—Do you want a representative?

Mr. Bowen—Certainly we want a representative. We want a representative to go up there and, if the National is not what it ought to be, we want him to go there and make it what it ought to be.

We should have some center through which all Associations can act, and I do not see that we can get it any bet-

ter than through the National properly carried out.

We want to send the intelligence and brains up there to bring the National up to what it ought to be.

Mr. Stone—I would like to add here: If we have a National Association without the Review we have not anything.

I am in favor of sending a delegate there who has the interest of this meeting at heart and one who will stand firm. I would not vote to send our President there because I do not stand on his side.

Mr. Kildow—To get this before the House: I move that this Convention discontinue our affiliation with the National.

A member—I second the motion.

Pres. Baxter—Any remarks on the subject?

Mr. Moore—I wish to state that, while I cannot say I have had any personal benefit from the National, I believe that we should stay with it, and, if there is any prospect of doing anything, the only way we can get that is to stay with it and work out that benefit; change the policy of the National so that we will get benefit from it. I think by all means that we should be affiliated with the National Association.

Mr. Stone—Mr. President: Members who have affiliated with the National in sending in their dues have some of them even gone so far as to send more than their dues were and have stated: "I want the balance to go to pay the debt of the National." There are some people who have their hearts in it. One man sent $1.50. He said: "If that pays the dues in the state, that satisfies me", but he said: "I don't want the Review. You can send me back my check if I have to take the Review."

But that is only one man. We have many more in favor of the Review. That is the only man who ever complained about the Review, and, so far as I am concerned, I am for the National.

I don't see that we have anything to affiliate with. We are just a state Association without any connection or anything, and without the Review I do not see any use for the National.

Mr. Coppin—In regard to being in favor of the National and the paying in of money: I expect a good many of the members thought they were obligated to pay their $1.50 the same as they had done, not knowing the condition of things, as to just how they stood, whether we wanted the National or not.

I did not know just how things stood; I paid my $1.50; I thought we had to pay $1.50, and I expect a good many others probably were in the same fix.

Mr. Stone—I will say another word that Mr. Coppin has put me in mind of. I will say to this Association: It is far better for the Secretary to have to pay each of these members back their $.50, because, if I keep the $1.50, I send $1.00 to the National; if you take back your $.50 I get $1.00; I am not speaking for the interest of our Association but only as connected with the National.

Mr. Kildow—It seems queer that we have to pay $1.00 for the Review and our report costs us over $1.00 to get it; we are 54 cents in debt every time we join here.

Mr. Stone—It doesn't cost us anything.

Pres. Baxter—Ladies and Gentlemen, members of this Association: I have thought over this question very seriously for a long period of time. I am at a loss to say what is for the best. I don't know. I have felt at times that I wanted to get out of it and have nothing more to do with it, and then again I would like to see the National go on. I think it can be conducted along lines of great benefit to beekeepers in all parts of the United States—so there is the way I stand. I would recommend that we try it another year; elect your delegate; have him go to the Convention of the National at Denver and see if you can remedy things, and, if we fail this year, I will certainly advocate next year at this time the discontinuance of our affiliation and drop it entirely until we can organize a new Association.

Is there anything further? If you have nothing further to say, there is a motion before us that we discontinue our affiliation with the National Association. Mr. Secretary will call the roll.

Mr. Bowen—That will not be necessary unless a division is called for.

Mr. Stone—A rising vote, counting all members, would be as well.

Pres. Baxter—I want every member to settle for himself this question. I want his name in black and white, as

to whether he is in favor of affiliation or discontinuation.

Mr. Kelley—I want to say if you lay off a year or withdraw for a year there is nothing to stop you going in again providing these Directors get removed or everything is all right.

Pres. Baxter—Yes, it would be better to go in and help them to rectify things if you are going to continue. The motion is that we discontinue our affiliation with the National. The motion is a positive motion.

A member—Change the motion—That we continue affiliation with the National for another year.

Mr. Dadant—I want to say that if we had a man like Mr. N. E. France in today I would not for a moment think of leaving the National; I don't think we can place much confidence in an organization that was conceived by Mr. Tyrrell.

Mr. Gates—To discontinue affiliation with the National would detract from the membership of your Association; this question may be worth your consideration.

Pres. Baxter—Are there any members who did not understand the situation and want to change their vote?

Mr. Dadant—I believe, if we would stay together and give instructions to our delegate that they eliminate the bad features and some of the officers, that it would be well.

Mr. Gates—Can any one say this Association has not received some benefit?

Pres. Baxter—I do say that we tried hard to replace this one Director; we may fail at the next meeting but let us try.

Mr. Stone reads the names of members and vote is taken.

Pres. Baxter—You will come to order, please, and we will hear the report of our Secretary on the vote.

Mr. Stone—As the vote of this Association stands, this Association votes to affiliate with the National.

Dr. Phillips—As it stands now we are to send a delegate to the National Convention. I hope you will select one who has the fortitude to stand by the sentiment of the Association. I am obliged to go.

Pres. Baxter—We are going to do that right away, now.

The matter is with you now that you have decided to remain affiliated with the National another year; the next thing in order is your choice of delegate to send to the Convention next February.

Mr. Kildow—Mr. President, as we are to have a delegate—I move you that our President be that delegate and that he go instructed to do the bidding of this Association with such instructions as they see fit to give.

Pres. Baxter—Ladies and Gentlemen, I have not been talking to be delegate; that is not my purpose at all. I have been saying just what I felt, what I say, what I believe to be true; but I would rather you would name some one else as delegate.

Mr. Kildow—I named you because I think you are the best posted of any one here on these things.

Pres. Baxter—Are there any other nominations for this office? If not I will declare the nominations closed.

Mr. Moore—I move that the Chairman be instructed to cast the vote of this Association for Mr. Baxter to serve as our delegate to the National Convention at Denver next February.

Motion was seconded and carried and vote so cast.

Pres. Baxter—Ladies and Gentlemen, I thank you for the honor conferred on me and I assure you that I am going to do whatever you instruct me to do primarily and outside of that I shall do that which I think is for the best interest of this Association and for the welfare of the National. My primary object will be to carry out your instructions but, if any question arises that is not included in those instructions, I will have to use my own judgment and I will do what I think is entirely in the interest of this Association, and for the best interest of the National.

Mr. Kildow—I believe that the President has heard what we have here threshed over and has a good idea of what this Convention wants and if he uses his judgment he will do the wish of this Association; he has the sense of this Convention and can act accordingly.

Pres. Baxter—I would rather have some specific instructions. In my recommendations in my address I said: There is one subject I want to bring to your attention which should interest every bee-keeper in Illinois and which should receive his best thought and undivided attention—That is—

"Co-operation among bee-keepers—its aim and scope, and how best can it be accomplished. Should the National Association be reorganized to take up this work, and, if so, to what extent should this co-operation be taken up? Or should the matter of co-operation be limited to the state organization exclusively?"

I would like to have you give me positive instructions along that line. Do you want to continue the publication of the Review, and do you want the National to continue the handling of supplies as has been done in the past two years? A motion to that effect will be entertained.

Mr. Moore—Mr. Chairman, I will state my position on that question.

If we continue the National Association, we have to have an official organ. The Review as it is handled today is too expensive a proposition; we discussed that matter at the St. Louis Convention and it was supposed there would be some means to bring the expense of the Review down so that it would pay the expenses of the publication or nearly so instead of running behind, and I think that, if the National Association continues, it should continue to publish the Review but it should be placed in a position so that it will pay out.

As far as the sale of supplies is concerned there must be a good many bee-keepers that the sale of supplies by the National has saved money. As long as the National is willing to buy supplies, I see no harm in continuing the sale of supplies.

I will move that the Association continue the publishing of the Review as an official organ and also the sale of supplies, and that the delegate be instructed to that effect.

A member—I second the motion.

Mr. Kildow—If it is to be left that the National continue the way they are now doing, I should say, No.

Mr. Stone—The motion does not define what the method shall be—only that it pay for itself.

Mr. Phillips—Mr. Chairman, the proposed Constitution as it is published in the November Review makes it possible to publish an official organ and to sell supplies but it does not make it obligatory, and if this Constitution goes into effect they can still sell the Review if they want to or they can publish it; and they can sell supplies or discontinue selling supplies.

As I understand the discussion at St. Louis it was not expected the Review would be continued or the sale of supplies but if it was desirable they would have the power under that Constitution.

The adoption of the Constitution does not necessarily compel the National to continue its present policy; that is the rock upon which the whole thing has been almost wrecked.

Pres. Baxter—I don't suppose this Society here today will ratify or reject that now proposed Constitution because it has not been legally presented. Whatever is done at the National Convention will have to be done through the delegates of the different Associations represented there. Am I not right, Dr. Phillips, in this position?

Dr. Phillips—I think, Mr. Chairman, you are, in general. Any one member of the National would have a right to present the Constitution for consideration to be acted upon or not, as was seen fit; and the action of publishing the Review might be a recommendation of any one—presented for action.

Pres. Baxter—I have not studied the Constitution enough to know if that position is correct.

Are you ready for the question?

Mr. Stone—I am in favor of voting this down and letting the delegate go uninstructed, or have the motion withdrawn.

Pres. Baxter—All those in favor of continuing the publishing of the Review and the buying of supplies, signify it by saying aye; contrary, no.

All those in favor of instructing your delegate to work for the continuation of the publishing of the Review and buying supplies—Rise.

Mr. Kelley—I want to amend that by having "Buying of Supplies" stricken out.

Mr. Moore—Mr. Chairman: This delegate body that is to meet in Denver will have under consideration the adoption of this new Constitution; what we are instructing our delegate is in regard to the aim and purpose of the National Association—whether we want the new proposed Constitution as amended, whether we want to continue the publishing of the Review—

Well, now, what we are instructing our delegate on is in regard to that one part right there, as to whether the Na-

tional shall continue this policy, that is, adopt this Constitution with that amendment right there; and my position is that they should, because if at any time in the future it becomes necessary or best that the Review be discontinued or the sale of supplies be discontinued, it can be so voted on by delegate body at any time and the whole matter stopped.

Pres. Baxter—On the other hand, Mr. Moore, if you stop it now and the time comes when you want to engage in the publication of an official organ or the buying of supplies, you can always make an amendment to do so.

Dr. Gates—Mr. Chairman: I will bring a matter up for consideration which I had not intended to mention, namely, that it is proposed that the Review be disposed of by the Association to the extent of its being passed on to a lower body, a subsidiary organization who shall be the owners of the Review and who shall run it for the National; I was not going to bring this up but perhaps it explains some seeming inactivity; that is one thing that is more than likely to happen.

Pres. Baxter—That being the case, my friends, would it not be better, then, to let your delegate go uninstructed so as to meet the contingencies as they come up?

Mr. Moore—With the consent of the second I will withdraw that motion. I think that our delegate knows the consensus of opinion well enough; he is pretty thoroughly instructed as it is.

Mr. Kelley—The question has been moved and seconded; it cannot be withdrawn; it must be voted on.

Pres. Baxter—Roberts in his Rules of Order says that, after a motion has been made and seconded, with the consent of the second it can be withdrawn before it has been put to the House; it has not been put, so according to Cushing and Roberts' Rules of Order it can be done.

Pres. Baxter—I will rule that the motion can be withdrawn; (to the second)—Do you consent to its being withdrawn?

A member—Yes.

Pres. Baxter—The motion has been withdrawn. What is your further pleasure?

Mr. Stone—Mr. President, I would like to ask if there are more than three essays to be read.

Pres. Baxter—That will be the next thing in order; we will hear the essays now.

Mr. Stone—Mr. President: The members are to be the judges; there are the first, second, third, fourth and fifth premiums. $5.00, $4.00, $3.00, $2.00, $1.00 for the best five; every one to vote on the essays without any discussion of the papers as read; if there is any discussion on the papers it will be after the vote is taken.

INCREASE OF THE APIARY.

Louis Werner, Edwardsville, Ill.

In the year of 1913 on the 25th of March I was visited by a flood which destroyed sixty-five colonies of bees out of 70 hives, and all were lost.

This left me five colonies in this yard. I had three in the country; I got them home—which left me eight to start with. Now how to make an increase was a puzzle—without buying bees. I came to the conclusion that I had all to gain and nothing to lose.

I overhauled the entire eight colonies to see that they were all in first class condition. I began stimulative feeding—one pint of syrup of two to one, every other day for about thirty days until I had seven frames of sealed brood in the eight frame hive and eight or nine in the ten frame hive, and then I sent for eight queens; just as soon as they came I divided—I took a four frame from the eight frame hive and five from the ten frame and run a good laying queen in the hive which was queenless; I filled out with full sheets of foundation and fed just as at first, one pint every other day until I had all colonies equal in strength as before, and sent for 16 good queens and I did the same as before.

The first division was made about the 10th of May; that made me 16 colonies; and the second, about the 15th of June, or the 20th; that made me 32 colonies.

From now on I made the increase by drawing on the colonies. Now I began to take one frame of sealed brood and bees from each colony; replaced with full frame of brood.

Frow now on until July the 10th I made five colonies every 10 days until I had 45 colonies; by the 10th of August I got a natural swarm; then the fall bloom began to show some nectar to come in. Up to date I had 47 colonies strong and some working

in super and by the 18th of August I got three more natural swarms.

Now the fall flow was the best I have had for years. It was heartsease, Spanish needle, boneset, goldenrod and asters which the bees gathered—all told 500 lbs. of honey, 300 of which was in comb and 200 extracted, in 1913.

I went into winter quarters with 50 colonies, strong, healthy colonies, and came out in the spring with 50 colonies, in 1914, and sold 17 colonies in May. Increased again to 53, and produced 700 lbs. of honey, 400 in comb and 300 extracted.

This was all gathered from August the first to October the first, 1914.

I fed. in 1913 only 100 lbs. of sugar syrup at a cost of $4.65 per 100 lbs., and I only fed 50 lbs. of sugar at the rate of $5.00 per 100 lbs. in 1914.

And now I have gone into winter quarters (November, 1914) with 53 colonies, with plenty to winter on and about 50 extra combs to be used to feed in the spring if found necessary to use.

This is my 38 years of practical bee culture since I began in 1877.

LOUIS WERNER.

Pres. Baxter—Mrs. Harry L. King of Springfield has an essay on

A FEW THINGS ABOUT BEES.

Bees are the smartest of insects and are useful to man, as they store up honey, which is food for man as well as well as for themselves, but it has been found that they must have the care of man as well as other domestic animals for they are, as others, subject to disease and must be looked after in time of a honey flow, that they have plenty of room to store in honey, for when they are crowded they are more liable to swarm, and when they are swarming they do not make as much honey, many bee-keepers are careless in obtaining the wax.

They will throw small bits and sometimes large pieces of comb on the ground where if they would keep a box for such purpose it would amount to several dollars worth of wax in one season.

Bees require salt, and a great quantity of fresh and pure water in reach, for if they have to go far they are liable to swarm and settle nearer to water.

The management of the apiary in the spring is to see that the bees have plenty of store left and feed a little sugar syrup to encourage early brood rearing, that we may have plenty of bees when the honey flow is on.

When the honey flow starts, the next step is to put on super and divide the hive to make increase as we see fit; see that the queens are all laying and renew all failing queens.

When the honey flow is well on, raise up super and put on others, as they are needed—then take off the full supers to avoid travel stains.

After the honey flow is over in the fall, the next thing to do is to see that they have plenty of store to live through the winter. If they have not enough, feed them enough to keep them through the winter. After the feeding is well over and the weather is getting cool, we pack them with straw and leaves to keep them warm as possible during the winter.

There are many different ways of handling bees, beoause we may talk to one hundred bee-keepers and find as many different ways of keeping bees as there are bee-keepers.

MRS. HARRY L. KING.

Pres. Baxter—Mrs. Kildow has an Essay on:

APICULTURAL EDUCATION.

Mrs. A. L. Kildow, Putnam, Ill.

Bee-keeping as a business requires talent, and comparatively few persons succeed in making it profitable as an exclusive line.

This is not the fault of the business, nor the locality, but of the men. It looks so easy that men are not willing to take the necessary time to become fully familiar with the business, as they would other lines.

Our best and most successful bee-keepers are those that have given apiculture special study; and it behooves us to form organizations to awaken interest on the part of the bee-keepers.

One great object of these organizations, or field-meets, is to glean, from our up-to-date bee-keepers, knowledge which they have acquired by long experience. By conversation with them we may fortify ourselves against many errors.

It is surprising what a diversity of hives, utensils and methods are to be found among bee-keepers.

At present there is an apiary near Fancy Prairie that has 22 stands of bees, all in old gums. These gums are

made from 12 inch boards, are 3 feet high, and kept on benches about 20 inches from the ground. This yard is near the road, but would attract attention only by its old-time appearance. If this man secures honey enough for his own household he is doing well.

In another locality we find a yard of 250 colonies in up-to-date hives; a well arranged yard, with system and modern tools for work, a good honey-house and work shop. This man realizes a handsome sum each year from his bees and keeps them for profit. Now where is the difference? Not in the location, nor necessarily in the bees; but in the bee-keepers themselves.

One man, not keeping abreast of the times, and the other a reader of bee literature, an investigator and ready to profit by other experience.

Education along the line of good hives, good location, ventilation, shade, sunshine and methods of handling is as essential as a good strain of bees. And these as well as bee diseases are topics of discussion at our Conventions and field meets.

The most important thing required is educational work.

Many practical bee-keepers, who are keeping bees for commercial consideration, pay little attention to disease, until it is in their own yard. They hardly know what it looks like, and ofttimes, before they are aware of it, the disease has gone through a large part of their apiary.

When the bee-keepers come to understand the serious nature of these diseases, to recognize them and the proper method of treatment, a great improvement in apiculture will be made—until a desire to understand bee-keeping is awakened, and the bee-keepers are anxious to examine the brood nests of their hives and learn to care for the various diseases, it is imperative that there be authority to compel proper attention.

With Conventions, field-days, bee literature and such men as Dr. Miller, N. E. France and C. P. Dadant to divide knowledge with us, and good practical application on our own part, we should make rapid strides toward profitable bee-keeping.

MRS. A. L. KILDOW.

Pres. Baxter—While I think of it—there is one matter I want to bring up, and that is the report of the Inspector and Deputies. The Secretary told us today that she had on file in her office complete data, giving the apiaries visited, the number of colonies, the number found diseased, the number treated, the number destroyed—I wish the Secretary would get up a complete report and make it as strong as possible, so that we can publish it in our report; it will do a lot of good for this Association in being able to accomplish the work they have in hand; I would like an explicit, minute report.

A member—I think that is a very good suggestion; I think she should be compensated for her trouble.

Mrs. Kildow—I think according to law and matrimony we are one.

Mr. Kildow—She takes the work off my hands.

Pres. Baxter—The vote has been taken for the awarding of prizes for premiums, by ballot, and I will announce the result:

Mrs. Kildow—16.

Mrs. King—12.

Mr. Werner—10.

Mrs. Kildow—I thank you for the honor you have conferred upon me.

Pres. Baxter—There being no further business before the Convention, we having concluded our business of this session, a motion to adjourn would be in order.

Dr. Baxter—I move you that we adjourn.

Motion seconded and carried.

At 4:30 p. m. the Convention adjourned to meet at the call of the Executive Committee.

At the convention of the National at Albany, N. Y., several years ago your Secretary, in the discussion on cement bee hive foundations, gave a description of one he had made. The editor of the American Bee Journal secured a picture of the same and published it. We have since had so many inquiries about it that we decided to place it in our report, through courtesy of American Bee Journal, also the bee escape in the box cover in the foreground, against the wheelbarrow on which is one of the foundations.

Top row—1, J. W. Newburn; 2, Jacob Hanfold; 4, G. W. Leka; 6, W. H. Gray; 7, Jake Frey; 8, Mrs. Stone; 10, Mrs. Kelly, and 11, Mrs. Kildow.

Second row—13, W. P. Turner; 3, Chas. Hastings; 5, A. O. Heinzel; 17, Joseph Hoy; 9, A. L. Kildow, and 12, Mrs. Harry L. King.

Third row—23, Aaron Coppin; 14, J. W. Bowen; 26, Harry L. King; 15, Dr. Phillips; 16, Miss Stewart; 30, H. C. Dadant, and 19, Frank J. McCombs.

Fourth row—24, W. B. Moore; 20, J. W. Kelley; 25, Chas. Becker; 27, J. A. Stone; 28, Emil J. Baxter; 18, Dr. Gates; 29, Dr. Baxter; 21, C. S. Bennett, and 22, L. Werner.

HON. N. E. FRANCE,
President for 1915.

E. H. BRUNER.
Secretary for 1915.

THE 17TH ANNUAL CONVENTION

OF THE

Chicago-Northwestern Bee-Keepers' Association,

HELD AT THE

GREAT NORTHERN HOTEL, CHICAGO,

DECEMBER 17 and 18, 1914,

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was called to order at 10:30 a. m., December 17, by the President, Mr. C. F. Kannenberg.

Mr. Kannenberg, President, addressed the Convention as follows:

"Members and Friends: I welcome you to this Convention and hope you will have a pleasant time with us here so that when you leave this hall for your homes you can say that you did not come here for nothing but that you have learned something more in the line of bee-keeping. That is what we are here today for.

As I look around this Hall and see friends whom I have seen before, I am again reminded that I cannot see them all. Some one is missing, our friend and brother Cavanagh, who has departed from us just in the prime of life. He had to leave his duties here and go yonder where life is sweeter than on this earth.

Brother Cavanagh was elected last year representative of the Chicago-Northwestern Bee-Keepers' Association to the National Bee-Keepers' Association but he departed from us just a week before the Convention met at St. Louis.

Now, when I think of myself as an American citizen and read of the terrible slaughter of men in the European war and of the widows and orphans left behind, I feel that we can be thankful that we can die here in peace.

Now we come here to learn something about bee-keeping and the best way to produce honey, not to talk

about war; and I am sure that, as there are brother bee-keepers here who can give us some good lessons on how to produce honey and to make it profitable to keep bees, if we listen to them and to what is said here, we will return to our homes more enlightened in the bee business, and we can say that we have learned something at this Convention, and will feel more satisfied to go home and be sure to come back again next year and be with us again. So I welcome you again. May the great ruler of the universe, the all seeing, benign, look down upon us and bless our work and may the glory all be Thine."

Pres. Kannenberg—Now we will have the reading of the Minutes of our last meeting.

Mr. L. C. Dadant, Secretary.

The President read the Address of Welcome. Treasurer's report read and referred to committee for approval. Letter from Mr. Burton N. Gates, President of the National, in regard to having Crop Reports taken, read and discussed. Committee appointed to investigate and make report. (C. O. Smith) H. S. Duby, Adam Bodenschatz.

AFTERNOON SESSION.

Mr. H. H. Thale gave a talk and demonstration on the Regulations of the Vacuum Feeder, after which a general discussion of feeders took place.

Mr. John Kneser gave his experience on buying bees by the pound and half pound.

Question Box and the Foul Brood question discussed at length.

Mr. A. G. Bordman of Grand Rapids, Michigan, gave a demonstration and explanation of a new foundation fastener and section folder.

EVENING SESSION.

Question of Bee Cellars and Winter Packing discussed at length. Method of liquefying honey so that it will not granulate discussed.

Discussion of delegates to the National; also question of joining; decided to join for 1913-1914, and F. B. Cavanagh selected as delegate. Committee appointed to draw up resolutions and amendments for presentation to National. President appointed Messrs. Pyles, Cavanagh and France.

FRIDAY MORNING SESSION.

Paper by H. C. Ahlers on Migratory Bee-keeping with general discussions following.

F. B. Cavanagh gave a talk on the use of the Auto Truck for Out Apiaries.

Election of officers followed with the following result:

Mr. C. F. Kannenberg, President; Mr. F. B. Cavanagh, Vice-President; Mr. L. C. Dadant, Secretary and Treasurer.

Mr. N. E. France gave a talk on Helpful Hints.

AFTERNOON SESSION.

I. E. Pyles gave a talk on Sectional Hives.

Report of Committee on Resolutions read and approved. Report of Auditing Committee received, showing an error of $10.00 in addition; same was corrected and approved.

Time of 1914 meeting left to Executive Committee.

M. M. Baldridge gave a full description of his treatment of American Foul Brood.

Mr. Kenneth E. Hawkins appointed to give publicity to the meeting in Chicago papers.

Adjourned by motion.

LOUIS C. DADANT,
Secretary-Treasurer.

Pres. Kannenberg—You have heard the reading of the minutes; are there any alterations or corrections? if not they stand approved.

Pres. Kannenberg—We have on the program a paper by Mr. L. A. Aspinwall on American Bee-Keeping, Past and Future. We will now listen to Mr. Aspinwall.

American Bee-Keeping—Past and Future.

(By Mr. L. A. Aspinwall.)

Mr. President, brother bee-keepers: I do not know but that there are older men here than I who might have given a little longer period of experience. "American Bee-Keeping, Past and Future"—I suppose it is to be understood that the past comes up to the present moment, and the past, present and future would cover it all.

Gentlemen, I have had bees since I was twelve years old, so it gives me sixty years' experience, and at the time of my beginning I knew of no such thing as movable comb hives, although Father Langstroth had invented the movable comb hive in 1850. In 1850 I had my first experience with box hives. At that time my grand-

father had bees in box hives; in the neighborhood there were some straw and some log hives then in use.

With the advent of Mr. Quinby's experience, with Father Langstroth's wonderful invention, bee-keeping, which was then without any head or tail, became, as it were, a nucleus from which the present high standard of bee culture has attained. Beautiful to think of.

I can recollect when I looked into the hive from below and saw such a wonderful structure—I became so tnthusiastic over it I never yet lost that enthusiasm, and, notwithstanding my love for invention, bee-keeping and its wonders cling to me still.

Mr. Quinby had his contemporaries, J. M. Weeks and T. B. Minor, who had been in the business a number of years, but their success never amounted to more than their losses.

Mr. Minor lost his entire apiary at one time from foul brood. Mr. Quinby was the pioneer in the discovery of a remedy for the cure of foul brood and he entirely eradicated it from his yards. Mr. Quinby furthermore was the first one to lay down the successful elementary principles of bee-keeping; I will not exclude Father Langstroth. Mr. Quinby was a prolific writer for Apicultural Journals. He wrote at one time for the Country Gentleman and the Rural New Yorker. His hive with his movable cap and his low stands, with simple board with cleat across each end, and glass honey boxes—gave bee-keeping an impetus from which it has never receded.

Father Langstroth's invention preceded the introduction of this hive of Mr. Quinby's, and the writing of his Mysteries of Bee-Keeping is a wonderful book and very practical. I have the old volume in my possession yet.

Father Langstroth's invention added more strength to the impetus given apiculture than could possibly have been obtained otherwise. His work was one of the most beautiful works on Bee Culture that has ever been published, and it has been fully kept up in its reputation by the present authors, Dadant & Sons, Mr. L. C. Dadant being present with us today.

It is a beautiful work. I cannot say too much in its praise.

Mr. Quinby's method of the cure for Foul Brood is known today as the McEvoy method, with the exception of shaking the bees over the comb foundation after two or three days. There was no foundation used or invented up to the time of Mr. Quinby's discovery

Furthermore, Mr. Quinby's humanitarianism never allowed him to burn a colony of bees; and this burning of colonies I seriously object to, yet: I do not think it ever should be done.

The Langstroth hive, as I said before, gave bee-keeping an impetus that has been lasting; with that came the possibility of numerous advances in apiculture—probably queen rearing, which could not have been accomplished successfully without the movable frame, and it aids in the detecting and the removal of foul brood within the hive.

The honey sections were invented by J. S. Harbison, in 1857, although there was but little known of the honey section in the '70s.

Mr. James Forncrook of Watertown, Wis., made them in one piece in 1876. The Roots followed the work up rapidly from that time on.

The methods whereby American bee-keeping has progressed rapidly, many of them, had their foundation in Europe; noticeably, the honey extractor, by Frances De Hurechke, near Venice, Italy, in 1865.

Mr. Root lost no time in following that invention up, and in 1869 gave another impetus to apiculture.

While comb foundation was invented previous to the extractor—this was in 1867 by Johannes Mehring,—A I. Root followed that up and brought its introduction into this country, and the production of the press for bringing it out. He followed that up in 1867, and made a great success of it, selling many mills for the purpose. He spent a great deal of money. I know what it is. I built a mill this last year which cost me nearly a thousand dollars. In place of the cells following the whole length there is within a space so that I can put the two half-sections together.

As you all know, the bane of comb honey production is the putting in the starters or the foundation in the sections—so I have devised this, and spent a lot of money to overcome that delay.

Mr. Dadant—You said you made a machine with big rolls to make foundation?

Mr. Aspinwall—Yes, to make the foundation. The roll has to be large to produce drawn cell foundation and worker cell foundation alternately.

Put in section of worker cells, then three centers of drawn, then follow one of worker, which makes the worker at the end of my super.

A member—Is that on a single roll?

Mr. Aspinwall—Yes, it has to be large enough to do that, and that accounts for the expense. To get it accurate was very difficult. I made it for my own self to begin with exclusively so as to make as little trouble at the honey yield season as possible.

As I said before, Mr. Root has done a great deal; he has pressed the business of the manufacture of bee supplies to an extent that it has advanced industrially, wonderfully.

The next thing added to American bee culture was the introduction of Italian bees in 1859 and 1860 by P. J. Mahan of Philadelphia and in 1859 and 1860 by S. B. Parsons of Flushing, Long Island. My start came through S. B. Parsons and Mr. Quinby.

Frank Benton has also done much to introduce the stock from Europe, notably the Carniolan stock which is probably as fine as any Italian. The great trouble is to maintain it in its maturity on account of its markings being so near like the common bee.

Another thing that has helped American bee culture is the discovery of Parthenogenesis by Rev. John Dierzone in 1848.

When we consider the progress of bee culture you will pardon me for bringing in the foreign inventions, because it became necessary to use these, and I must give credit to whom credit is due.

By this discovery we have that which enables us to control our stock better and make better selections, and aids us in the wonderful business of queen rearing very much indeed.

American bee culture was also anticipated by the scientific end of it in Europe. We are much slower in taking up that end than in Europe. In this connection of queen rearing, we want to give a little credit to G. M. Doolittle. His scientific queen rearing gave advanced methods with which most of you are familiar.

This subject is interesting to me perhaps more so than to a great many others and it could be talked upon all day. Of course I am just going to outline what I have run against since 1854.

In 1859 just previous to the introduction of the movable comb hive in my yard I lost half of my bees by foul brood. Mr. Quinby's method enabled me to get out of it in time for superseding my hive with the Langstroth frame.

I want to credit Mr. Quinby with the smoker, and, while we find that there were smokers in Europe previous to his, we have to give him the credit for originality and the success of it in this country. This came out in 1854.

Mr. Bingham followed this closely with the improved draft, which enabled the fire to continue without its smothering out, so to speak.

We are not aware where the tiering system began; the tiering system of supers; it is important in bee culture today, and I believe began in 1865. There are not many who know that, but Mr. Quinby gives it in his second edition, on page 140, as 1865.

It is marvelous what will grow out of a small thing. It looked like a small matter to take a box and set it on top the hive; he had four glass honey boxes, and he would lift them up when the honey yield was coming in and put another under, and in that way he estimated he would get from a third to a half more pounds of honey.

Mr. Quinby came out with his foul brood cure in 1852, and yet there is more foul brood today than ever in the world, for the reason that bee-keeping has advanced so rapidly that there are thousands and thousands more bees.

Foul brood is here to stay—like other diseases; and in this connection, the more advanced we become in bee culture and the more scientific it becomes, it will dwindle down into the hands of a few specialists, and in that way we hope to keep foul brood down.

When I was a boy the farmers around us had five or six, up to twenty swarms of bees in various box hives and logs. My first yard of bees became contaminated through one of these yards having foul brood. My bees lost no time in hunting up that honey and carrying the germs.

The Wax Extractor—That as used today was originated in Europe also. I quote from Professor Gerster of Berne, Switzerland; he is given as the inventor of it.

And the Queen Excluding Zinc is another important piece of furniture in the beehive, so to speak; that was in 1865 by L'Abbe Collin. I quote Father Langstroth—and I want to say in this connection you can get more data on the Langstroth device in this work than any other published in the United States and probably anywhere in the world.

The Bee Escape, by Rufus Porter of your own state, in 1893.

Lots of attempts were made before with various devices but this is one that has proved such a success and is that used today.

I want to refer more especially to the developments and its bearing on the future:

The future of bee-keeping as I mentioned a moment ago is going to be in the hands of the few—those that are specialists, for you cannot very well attend to bees and another business and attend to the other business well at the same time.

There are some things that are closely allied to it—poultry raising for example. Most of the work in the poultry yard can be attended to after hours when it is too dark to attend to the handling of bees. It will not do to handle bees when it is too dark for them to see very well; they are apt to be a little cross. You can spend a few hours in the morning and evening and can accomplish a great deal. Now we have bee-keeping of the future in the hands of a few, but it will be in the hands of those who can also attend to some pursuits in connection with it. This will enable the bee-keeper to become more scientific and guard against the inroads of foul prood; in the meantime the small man cannot make bee culture profitable and his foul broody apiaries will die out.

Bee-keeping of the future, furthermore, will be on more scientific lines and the anatomy of the bee will be better understood; and with these lines of knowledge we are able to build up practical bee-keeping much better.

Now as to the production of drones and the value of drones by the production—we know just where to get the best drones and we know how to get the best queens.

I have bees that are much larger than the average bee, through the selection of the very best. I attribute some of my large yields of honey to that in a great measure.

Furthermore, the controlling and mating of queens will enable us to have purely mated ones.

We have made great strides but we have some to make yet before we are on a fixed, intelligent basis of bee culture.

The next will be—and it will probably be in advance of the mating of queens—the perfect control of swarms. We have not had that for a quarter of a century.

I have been working on inventions for 53 years. I want to state in this connection, the man who can live to convey his thoughts and labors to his fellow man will do a lot of good in the world. This is notably true of Mr. Quinby; he was a prolific writer, and Father Langstroth, and Mr. Doolittle, and there are a lot of good writers today. When a man can not only benefit men by the production of his industry but can transmit it in writing, he has doubled the benefit to be received by his fellowmen.

Referring back again to the non-swarming hive, we must have control of our bees in that respect as much as we have over our domestic animals, poultry and the like. Why should the bee be an exception?

I am not going to give you a description of what I have but at the same time I will state, as some of you know what I have said: That in the 1913 experiments I made an advance which was greater than in the ten years previous to that. The result was perfect control of swarming under a high tension yield of honey.

In 1913 I obtained from one colony, the one that had the hive constructed the nearest perfect, 308 sections well sealed over; that colony yielded me over $30, you see. Of course my hive cost $10; the hive paid for itself the first season with good interest.

Another thing: An investment of that kind becomes an asset in the yards; it is a durable hive. We buy machines, binders, harvesters and such things—and potato machinery that cost us more than by working by the old method—why not what is needful for bee-keeping?

I sold six of them to one man from Madison, Wisconsin. I do not know whether he is present today or not. They bought two of them last season

and he reported on one of them, although a poor season, that it gave him 280 sections.

I claim that by the use of the non-swarmer, with perfect control of the bees, in which there is not the least desire to swarm, we can get three times as much honey as by the old methods.

The methods of wintering bees also will be more perfectly understood in the future.

I have not made public my manuscript on bee culture which I have been compiling for the past 20 years, in which the anatomy of the bee is more correctly defined than at present. I spent six months on the tongue of the bee, and tired my eyes and head day after day with that one little member of the bee; the other members more or less time was given, occupying weeks and months—although less time for each different member than was given the tongue of the bee. The tongue of the bee being round, the field of magnification with the microscope varies so that it is difficult to obtain an understanding of its workings.

The working out of practical bee culture depends upon knowing the art scientifically "from A to Z."

The wintering of bees successfully should enable a man to take 100 colonies, provided they have a reasonable number of bees to go into winter quarters and sufficient honey and go through the winter without a single loss, unless the queen may die; even with young queens even, I have known under some circumstances a young one may die; the old ones are more apt to.

I am not as particular as I was in reference to having young queens in my colony at the start of the season to control swarming. I think I can control it with queens two and three years old about as well, but the successful wintering of bees should be such that no colonies will be in danger, although the mercury may run below zero for eleven days in succession, as it did I think a few years ago—in the heart of winter we had, out of the ninety days, 30 zero and below, and in February we had eleven days in succession below zero. This is to be the next thing in bee culture. The bee can carry in its sack enough honey to tide over about a week. Take a swarm and put it in the cellar where it cannot fly, a dark place, that colony will survive seven days before starving.

The uncapping of the cells is impossible under a low temperature; with a rise in temperature the bees uncap and draw upon it and spread it around where they can get it easily; they also contain a quantity in their sacks during the winter, but let 11 days come in which it is below zero and I will guarantee that in my colony in box hives none will succumb. The hive must be so constructed as to get rid of moisture.

Let me say, the steel covers that have been advocated are altogether wrong.

I will state what I use above the frames—I mentioned it to one or two this morning: I use above the frames, which should be clean—a piece of unbleached muslin, perfectly clean, so that the moisture of the colony can pass through between the bars, and over that a with another piece of muslin which forms its bottom of planer shavings.

You have a slow upward current, in which the moisture passes off.

To prevent a strong upward current, the entrance is made with a space 2x½ inches. Men have said to me—"You will smother your bees." No, I can get more air through a half inch opening than the bees can use. And there is no draft to speak of.

Another thing: The cap must be so as to get rid of moisture. The caps are made of boards 3 feet wide and 3-8 inch spaces between them. Those are covered with galvanized iron. Instead of having a wet top and shavings soaked, it is perfectly dry except a little bit of steam in the center. I will say that I have had colonies come out and you would not see a particle of excrement discharge on the hive at all.

It is the best thing in the world; you get all the old honey in supers, and feed them back on sugar syrup. Feed it late in October. I have not fed my bees yet. Kind Providence has stepped in at the eleventh hour with me for three years; when a man gets old he cannot do things quite so fast and there is more of it to do and he has to hustle.

If this syrup is made thick and put in the feeder they can get at it in freezing weather.

In addition to non-swarming and the winter problem and queen mating, must

come the short methods in bee culture all the way through.

We want to get rid of partly filled sections quickly. I am inventing, what time I have. I cannot be long at it.—Take a partly filled section, run it through a crank and it presses the wax out at one end and the honey below; a good deal like the fruit presses. That is another thing I think ought to come in the line of future bee-keeping—get rid of those sections.

In addition to that, we want a smoker that is just right; the smoker is an important item. Mr. Bingham made a good smoker that has not been improved on very much, if any. I suggested to him a few years ago to put the cover inside; I suggested a high top, but Mr. Bingham was getting too old for active work and thought he would not do it. I suggested to make the top 5 or 6 inches higher with a hole inside. I don't use the fuel that a good many do. I use very coarse sawdust, and over that I take a wad of green grass and put up in top, and the smoke is just as cool as water in October, and no sparks fly out. I might talk a long while about short cuts in bee culture.

Introduction of Queens.

While it is easier to introduce queens in summer, we do not want to interfere with the honey flow. It is best to introduce queens after the honey season is over, and the method known as caging is the best. Leave them in 48 hours and let them gnaw their way out then. The best of all is to wait until it freezes up and take the queen away before it freezes up.

With my non-swarming method I rear an extra queen and I get queens enough purely mated to weed out all the mis-mated and poor ones; every year I have six or seven more than I needed.

When a colony swarms every bee is impressed with the idea of swarming. When you look in the sides of the hive through the glass and see them an hour before swarming, you will see them begin to move in great circles, and they must be a unit to do that. You don't see one but that is disturbed by the prospective movement in the new home.

There are a lot of details of queen rearing that could be gone into. I was in hopes this season would be a good one. I will give it a test in the 1915 season, hoping we may have a good honey flow.

The alternate thawing and freezing was the undoing of 1914.

There may be some other things that will suggest themselves, but the future of bee-keeping depends upon three things: Control of swarming; the control of mating of queens; a sufficient number of queens and selected ones that will maintain an Italian apiary in its purity. I have seen a good many bee-keepers who pretend to have an Italian apiary but they are more hybrids than pure.

Pres. Kannenberg—I think Mr. Aspinwall has good ideas. Does any one else want to ask questions? I believe he would be willing to answer them.

Mr. Miller—I would like to ask Mr. Aspinwall if he thinks the bee-keeping industry will be in the hands of a monopoly so that the business will be conducted by large companies?

Mr. Aspinwall—It may in some localities; I hardly think it will for the reason that the pasturage cannot be confined to small areas. Where it is controlled by a combination, it would be too widely located, I think. I rather think that bee-keepers should be associated with one or two more bee-keepers conducting large apiaries in their immediate localities; there would be great advantages in that respect. What is a man going to do when he gets old unless he has a partnership—a company will move along just the same when I am gone but my bee yard will not unless I am associated with some one else and for that reason I believe bee-keeping should be in the hands of a co-partnership.

Mr. John Klein—What can there be done to exterminate lice from bees?

Pres. Kannenberg—Has any one had experience with lice on bees?

Mr. Aspinwall—I never had any. The secret of preventing that, from what I have learned in reference to the bee lice, is to keep the bottom boards as clean as possible. The rough bottom board would favor their production and increase, and the cleaner you can keep the bottom board where all filth is dropped and carried down, the better it will be. For a bottom board under such circumstances, I would suggest a glass one on the top of the wood, such as many of our tables in many dining halls have today. I

think it will be far better and the filth can be dropped on that.

Mr. Klein—You don't think the bees would exterminate them, do you?

Mr. Aspinwall—I don't know.

Mr. Klein—They are perceptible to the naked eye and they produce annoyance to the bee, I am aware of that.

Mr. Aspinwall—I am unable to give any definite light on it.

Pres. Kannenberg—Does anybody else know anything about bee lice?

Mr. Coppin—I do not understand why this gentleman manufactures drawn foundation, in regard to his machinery invented to manufacture foundation for drawn and worker comb; I did not understand for what purpose; whether he used it in the brood nest or in sections, and what the idea was.

Mr. Aspinwall—Mr. President, replying to that question, it is exclusively for the sections. In using a super which contains 30 sections or two supers over the main body of the hive, I have 60 sections over the brood nest in which they alternate with sealed frames; that has only six brood combs outside of the nucleus. That limits the queen so that she can attend to her business. She can lay more eggs. I use queen excluding zinc and keep her out of the section. The reason I use drawn comb in the center—there being so few brood combs below, they would deposit pollen in the worker comb if it was over the brood nest, but, with worker comb through the center, I have had some colonies and some seasons in which they were nearly filled with pollen; with drawn cells they never deposited pollen, I don't care how free the communication.

The main thing is to keep the pollen out of the cells. I must say, out of 4,000 sections and over I got out of 23 colonies I had not a single comb in which I could see a trace of pollen, and for the reason that I used drawn comb; that prevented it entirely.

Mr. Coppin—I do not know which is the better of the two; I object to using a queen excluder honey board for the reason I think it causes the bees far too much trouble to get to the sections; and on the other hand it is not very pleasant to have pollen in the sections of honey and they will put it there sometimes. If the drawn comb will keep it out it is a good thing, I think.

On the other hand, a section of honey built from worker bee foundation looks better than that built from drawn comb. It is smoother and looks better. On the other hand, if we use drawn comb in the sections without the queen excluder, the queen will go up there in that brood, so we have to keep the drawn comb out of the sections, else use the queen excluder.

Mr. Aspinwall—I would prefer to use the worker exclusively because it is one size right through; if we have the appliances to make them I would just as soon have the drawn. In speaking of looks, I know that in most of the sections I have the finest looking honey in drone cells. The only objection to drone cells honey is—if the machine that furnished the foundation had been thin enough, under some circumstances with a rapid yield, it will not be worked out so well as the worker foundation, but with proper foundation there is no prettier honey in the world than that of drone cells. And they show the minimum amount of wax; it looks far better than worker comb; and the flavor is just as good; the consumer does not know the difference. I sell my honey in Jackson and the consumer asks no questions. One lady telephoned and said she wanted some of my honey, and she asked the question—"Is it perfectly white?" If she had been eating it in the dark she would not have known the difference; one is more creamy than the other, but it must look right on the plate; that is it, and it will look just as white with drone cell as worker comb provided it is made by the same bees.

Mr. Coppin—I have been exhibiting in fairs, and I am using a section that is split, and full sheet of foundation; put it in four sections and the beekeepers ask me (and I use the worker bee foundation) how it is I can get the honey so smooth. I look at their honey and I say, "Yours is built in drone comb while mine is built from worker comb." It seems to be a better looking article.

I have a sample there (on the table) of the sections filled with honey, and I wish you (Mr. Aspinwall) had some of the drone combs that we might make a comparison.

Mr. Aspinwall—I will admit that the honey in the split section does not look quite so nice as one that is solid, and it advertises to the consumer that it is made on manufactured foundation;

with a solid section that question would not arise. I never had any questions asked.

When I can get 300 sections from a colony I can afford to sell it cheaper, perhaps at a minimum price. If a man gets ten cents a section for 300 sections he has $30 from a colony, and all I have to say to the man who is buying it at that price is—"If you do not want it at that price, although it is split section (at 10 cents)—I can find ten to one men who do", and I have never had that questioned.

It is coming to the question of how cheaply we can produce honey.

We have to produce it cheaper in great quantities in good seasons. We may have a season in eight or ten years in which the bees will not pay for themselves, but with non-swarming hives during the average season they will pay well, and this matter of drone cell foundation is not going to cut any ice at all.

The question is—whether the honey is pure and of the right kind. Clover honey is the honey, and alfalfa is really of a finer flavor than clover.

Where I have sold my honey, and some have gotten hold of the alfalfa, and didn't know one from the other, they said the alfalfa honey tasted so fine and that was what they wanted.

Alfalfa is being introduced from Colorado into our state. It produces the finest honey imaginable. Alsike comes next to it.

A member—I have alfalfa in my section of the country and I never saw a bee on it.

Mr. Coppin—I have had the same experience; lots of alfalfa, and I never saw a bee on it.

Mr. Aspinwall—I have seen it covered with bees in Jackson county. A dairyman, who is not a bee-keeper, said to me, "I see some of your bees around; if you will put them in my yard I will let you have half the honey they gather from my alfalfa." I said —"I am getting all of it now."

Mr. Ahlers—I pretty nearly agree with everything Mr. Aspinwall has said. I think if they didn't have the alfalfa, but clover around there, he would get so much honey he could not weigh it.

Pres. Kannenberg—He might have lived in a different neighborhood where there is nectar in alfalfa—in mine there is none.

Secretary Dadant—I think it was Mr. Pyles who said last fall in this connection that he believed it was the condition of the soil. I have never seen one bee on alfalfa, but Mr. Pyles said that in their country there was a sort of sandy soil, in the central part of Illinois, and the bees did work on it. There is no doubt that they work on it in Colorado.

Dr. J. J. Brinckerhoff—There were two pieces of alfalfa near my home this summer, about four miles apart (two or three acres) and on one it was rolling with bees and on the other one there were no bees at all on those days I looked; one piece that was on gravelly soil had no bees and the other piece on rich soil was rolling in bees. I do not know what made the difference, I am sure.

Mr. J. H. Kneser—The bees worked on aflfalfa the year 1908 and this year again in Cook County; that soil is lime and it contains phosphorus. This is the first year since 1908 that they worked it.

Mr. J. R. Simmons—I live just outside of Chicago and we had two pieces of alfalfa in the immediately vicinity, and my bees were not gathering honey on any thing and they would not work the alfalfa. There were two or three pieces of alfalfa; I went there a number of times and they were not gathering any honey on it.

Mr. John C. Bull—Fifty miles from here we have alfalfa in our locality and no bees on it. I have seen small bumble bees working on it. I have noticed no honey bees but a great many bumble bees.

Mr. Aspinwall—Possibly most of you know the yield in alfalfa is not very rich but there will be a yield of alsike at the same time and I think they prefer the field that gives the greatest amount of nectar.

Another fact—The introduction of a germ or something that feeds upon the root; I have seen them on catnip and different things and that was necessary before the plant yielded any amount of honey. I don't know what it amounts to. It might be in certain gravelly soils we would not find moisture enough to produce any effect upon the root of the clover while in humid soil it might make the difference referred to by Mr. Brinckerhoff.

Mr. Farrington—I would like to ask if some one here is informed as to whether the western alfalfa yields nec-

tar more than other alfalfa. It is my understanding that unirrigated alfalfa does not yield nectar.

Mr. Dadant—As I understand it they have fields of alfalfa in Kansas that are not irrigated that yield honey.

Mr. Farrington—They have yields from alfalfa in Kansas that is not irrigated I am sure.

Pres. Kannenberg—We have on our program, "CROP REPORTS". I would like to hear from any who have had good crop reports.

Mr. Dadant—I think it would be a good idea to have each one get up in turn and give his individual crop report; state what per cent of a crop he had; whether he had no crop, what the prospect is for next year, and let the stenographer take it down, and we will get the general average of what the crop has been and what the prospect is for a good crop as represented by this meeting.

Mr. Edward Hassinger—What would you regard as a full crop or a half crop?

Pres. Kannenberg—It depends, I guess, on how many colonies you have. If you have had no crop you will know; if you have had a good one you can state that.

Mr. Dadant—Base it on the average: How many pounds per colony you count for the crop as an average, and whether your crop has been above or below the average.

Dr. Brinckerhoff—That would be all right for those who kept bees quite a while, but with the amateur—he would not know whether he was getting a big crop when he got three sections or when he got 40.

Mr. Bull—Give the average yield per colony.

Mr. Klein—I am aware that bees do not work alike; some are more industrious than others. I have had an experience this last season; two or three of my hives did not do well while others brought in abundantly.

Pres. Kannenberg—Then figure it together; see what you have when the season is over, whether you had a good crop or a poor one.

Secretary Dadant—Mr. Harnack Wilbert will give his report, please.

Mr. Wilbert—This year in our country we didn't have a very good crop; I have been running it with other things. I run most of my bees for extracted, few comb. I kept two yards about four miles apart. Some of the bee-keepers in my country have gotten no honey. I think it was on account of not giving their bees proper care; mine averaged not more than one-half. We figured this year about 40 lbs. to the colony; other years we were getting about 80 to 100.

Pres. Kannenberg—What is the crop of Mr. R. H. Schmidt?

Mr. Schmidt—I have 140 colonies and my crop for this year averaged 80 lbs. per colony, extracted.

Mr. Bull—I would like to suggest that the location be given in giving these reports.

Mr. Wilbert—My location is in Iowa, near McGregor, Golden County, 250 miles from here.

Mr. R. H. Schmidt—Sheboygan.

Mr. Bull—Northwestern Indiana; my yield, 40 lbs., the average, all extracted.

Mr. Dadant—What are the prospects?

Mr. Bull—The prospects are poor things to figure on.

Mr. Dadant—With us we know we have no prospect because we have no clover in the ground. In Wisconsin, they may have a poorer season than we have had, but they have the prospect good and we have not.

Mr. Bull—To tell you the truth I have been too busy to look after the prospect.

Mr. M. M. Baldridge—Forty miles west of Chicago. My bees this last year have given about 50 lbs., comb honey, to the colony. The prospects for the coming year I think are very good, alsike and white clover.

Mr. J. W. Lang—I have 40 hives of bees; we have no honey at all, no surplus; some of them made a little honey; some of them not enough to live through the winter. I live about 100 miles south of Chicago. It is not because I did not take good care of my bees. I am a great friend of bees and take good care of them; I gave them full foundation when I put them in the hive, and plenty of room to work in.

We have been for two and one-half months without rain. The prospect for next year is very poor, for we had no rain to start the new clover, so it has not sprouted at all, and if it doesn't do that in our country we will not get a crop next year. If we want honey, we will have to have our white clover sprouted and take root in the fall, then

we will run a chance of getting a good crop of honey for the next season.

Mr. Van Wingarden—Lake County, Indiana; secured 40 lbs. to the hive, extracted honey, prospects good for next year.

Mr. W. B. Blume—My average is 45 lbs., comb and extracted; suburb of Chicago.

Mr. H. Roehrs—I am located about 60 miles straight west of Chicago. My average crop has been about 75 lbs. per colony of extracted honey. I might have gotten more honey but bees are a side issue with me. I put my time in with my poultry. I have fruit and poultry, and the bees go well in taking care of the fruit.

Nine years ago I brought about 40 colonies from Wisconsin; they were in fine shape, but my neighbors had foul brood right here close to Chicago, and I have been up against it ever since. I lost nearly all, and now I have 20 to 22 colonies. I got rid of foul brood last year; last year I averaged 125 lbs. per colony.

Going back to foul brood—I have made that a study. I subscribe to what Mr. Aspinwall has said; we are going to have foul brood with us because I believe the germ is there with every colony, and as soon as a colony is out of shape it will develop, otherwise the bees take care of it themselves, but we are going to have to fight foul brood as long as we live.

Mr. Dadant—What is your future prospect—for next season?

Mr. Roehrs—I hope it is good.

Mr. Aspinwall—Mr. President, I had about 30 lbs.—I have not weighed it up, but as near as I can get at it—per colony, against 200 sections last year per colony. Of course my bees are non-swarming hives and you would naturally suppose they should have given me a little more this year than those that have given their statement. But the bees cannot get honey where there is none. We cannot dig potatoes with a machine where there are no potatoes.

Referring to the honey source—a year ago last autumn the prospects were never better for clover but the continued thawing and freezing, and no snow on the ground until February, completely destroyed the roots and also affected the roots of autumn flowers, so that there was nothing at all on the flowers. Although the plants lived and have done well, there was no honey.

Referring to the gentleman who has just spoken, Mr. Roehrs—that foul brood is here to stay: I did not mean that it was in the individual yards, but that there would always be some careless bee-keepers around who would not take the proper care of their bees—farmer bee-keepers, for example, who did not understand how to properly care for bees, and in this way the bees of the bee-keeper near by would be contaminated. But if we look at our combs carefully and there are no foul broody cells to be seen, you can count on those being exempt.

I look at mine in the autumn. And in this way I find it the finest way to eliminate it possible. Go over them in the autumn and get rid of those colonies at that time that are questionable and you will not lose colonies.

The prospects for next year are looking fairly good. There is quite a good deal of white clover, though not as much as the year before. It takes about one year to overcome failure by destruction of clover before we can get right again.

1895 was the last of four years of terrible drought, and clover was all dried up. In 1896 there was a little; didn't yield any honey, hardly.

In 1897 was the greatest yield of honey I ever saw. I wrote an article for the Bee-Keepers' Review in which I said that the clover completely covered the ground in most places, and it seemed as if an angel had come down and sowed seeds everywhere, the fields were so white. The seeds had accumulated for years, it seemed, and produced a yield for 1897.

Mr. C. J. Wuetig—I live about 16 miles south of here. I had only six colonies in the spring and I got 40 lbs. of honey altogether, a little over half section honey and the rest in shallow frames.

Mr. A. G. Woodman—In the immediate vicinity of Grand Rapids. About one-fourth of a crop. The entire state of Michigan yielded a little above normal crop. Prospects fair for next season.

Mr. Edward Hassinger—Average yield 115 lbs. of extracted honey per colony. 76 colonies. Prospect next season good. I live in Greenville, Wis.

Mr. C. S. Know—Whiteside County, Ill. Comb honey—failure. I do not

know what the prospect is for next year. The country is pretty dry this year.

Mr. A. Coppin—I live 108 miles southwest of here. My average yield, about 5 lbs. per colony—175 colonies. Nothing in sight for next year in the way of white clover and that is about all we have. Marshall and La Salle Counties.

Mr. H. C. Ahlers—Wisconsin. Nearly 80 lbs. of extracted honey per colony—325 colonies. Prospects are good.

Mr. John Klein—I live 80 miles southwest of Chicago, La Salle County. I have now 15 hives of bees. I averaged about 60 to 65 lbs. per hive this last season. I am solely dependent on white sweet clover. The largest yield was brought in the months of August and September. I am almost dependent on sweet clover; we have a very little small white clover. There is plenty of sweet clover and my prospects are good for next season.

Mr. Coppin—I will say—That this gentleman spoke of having gotten honey from sweet clover. I have one yard of bees that were in reach of 20 acres of clover that was grown for seed or else I would not have gotten 5 lbs.

Mr. W. A. Warman—Indiana, about 40 miles southeast of here. My average this year was about 40 per cent of what it was last year and amounted to about 55 lbs. per colony. Have 5 yards—about 350 colonies. One yard gave less than 10 lbs. per colony. Another yard ran over 100; most of fall honey. No clover in sight for next year.

Mr. G. E. Bacon—Yield in our locality was about 50 lbs. comb honey, average per colony. Watertown, Wis.

Mr. W. C. Lyman—Dupage County, this state. I will say, about 25 per cent crop, all extracted. I averaged perhaps 15 lbs. per colony. Prospects for another year, on clover—about 50 per cent.

Mr. F. J. Rattig—Mr. Chairman, I am from Wabash County, Indiana. and am almost ashamed to come up here and give my experience in bee-keeping. I got started in bee-keeping in a queer way My wife attended a sale of bees and bought six stands. Just after that we had the Ohio flood and three of these were drowned. She tried to straighten the hives up and the bees got all over her. After she did get things straightened up she looked like the fat girl in the side show.

That is the first experience. She said she never would do anything more with bees, and I kind of took a hand in it.

How I formed a liking to that I don't know but she says I have gotten them in my bonnet.

Last year we had three stands left, and to three stands fed 200 lbs. of sugar, and got about the same amount of honey.

I got all the Bee Journals and everything I could get and commenced to study bee culture. I commenced to raise queens.

I traded a lot of them for three other stands—and out of the six stands I got about 30 stands including the nucleus, and this fall when I put them up I fed 400 lbs. of sugar and got 40 to 45 pounds of honey, but I have 24 swarms of bees left and the prospects for next season are about 400 lbs. of sugar, and if it takes twice that I will never give up the bee business because I like it.

I try to keep my bees sweet and I surely do.

Mr. Dadant—You'd better sow clover.

Mr. Rattig—I have 2½ acres of ground and am in the wholesale mill supply business and my wife says that I am going into bankruptcy. Bees are the only enjoyment I have, and I really do enjoy it. But the State Inspector was up there. I thought I had a case of foul brood, but it was not. He said not to worry, it would turn out all right, which it did. The bees are doing fine. Because I have made such an increase from so small an amount is probably the reason of no honey.

I don't know anybody near me who has made much of a success in honey producing. There is a preacher six miles east of us who has bees in his bonnet but he did get a bunch of honey.

Pres. Kannenberg—Don't have the Pure Food Inspector come there or he may say the honey was adulterated.

Mr. Rattig—We don't get nearly enough for ourselves, so if it is adulterated it does not make any difference. I get pleasure out of the bee business if I do not get honey.

Pres. Kannenberg—You keep on, but buy clover and sow flowers so that you do not have to buy so much sugar.

Mr. Aspinwall—I think the trouble is he has had more bees than honey.

Keep the bees down; don't increase them so fast.

Mr. R. A. Burnett—Mr. President, I am delighted to follow Mr. Rattig. I have heard of its being a "skidoo" number, but not so with him. His is an interesting story.

Mr. J. R. Simmons—I believe I made my report a little while ago. I live about 20 to 25 miles south of here, in Cook County, and I did not get any honey this year, that is, not enough to call it anything. I do not call it any if I do not get 8 to 10 lbs. I heard some one say last year it was because the bees were not cared for; but I gave my bees good care.

Last year I got 175 lbs. to the colony. This year I didn't get anything. The prospect for sweet clover was never better, but white clover not much. The sweet clover is up about one foot high.

Mr. J. H. Kneser—Northeast part of Illinois. 55 lbs. per colony, two-fifths comb, three-fifths extracted. Prospects fairly good.

Mr. C. Kubick—About 12 miles from Chicago. I had a fierce battle with foul brood, so I won't mention the crop, and combined with that a poor season. I do agree with Mr. Aspinwall, that foul brood has come to stay. There are people keeping bees who have no right to and in this way my bees were contaminated, like a good many others this year.

Another thing—is the Inspector. There was an Inspector out there and he looked some of these over. I do not know whether he knew foul brood when he saw it. I called in a man who had had a little experience with foul brood and he said it was American Foul Brood, and so I treated the entire bunch, and you can imagine what my crop was.

There are a good many people, when they buy a section of comb honey from a man who keeps bees, they do not realize the trouble he has been to in wintering them and they will go and get a hive of bees and they don't know how to take care of bees, and those bees will become contaminated; they don't know what the trouble is; they leave those bees to die there and everybody's bees nearby will have a luxurious feast, and what is the result?

This one man had 15 colonies, and he always complained he did not get honey, and I looked at one of his hives at one time, and, not knowing what foul brood was, I recognized there was something wrong. He claimed an Inspector had looked at them and said he thought he had foul brood in two colonies. He burned those two colonies, and he should have treated the entire bunch.

Another thing, in treating foul brood, as I have found out, is that you have to sterilize everything. I don't believe in letting the bees clean out the hives themselves. The germ is in there and you have to burn it out and boil the frames and then it is only a question of time but that you will get it. Again, there are so many moss-backed bee-keepers around.

Mr. Miller—I don't know whether I am one of those moss-backed bee-keepers. I have had eight years experience with foul brood. I never burned a hive in my life. Bees don't eat wood.

I have gotten rid of foul brood in three of my five yards, and very little in the other two. It is the European Foul Brood, not the American.

I have lately learned how to clean this foul brood without even destroying the combs. I used to destroy the combs.

Mr. Dadant—That is altogether different.

Mr. Miller—I never burned a colony of bees but once when I first got foul brood. An old gentleman told me that the only way to cure foul brood was to burn up everything. I burned one hive and quit and never burned another one since. There is no need of it. People who have had no experience with foul brood say that the best thing is to burn up everything, but after several years of experience I find there is no necessity of destroying property that way.

Mr. Dadant—Do you refer to American Foul Brood?

Mr. Miller—European Foul Brood.

Mr. Kannenberg—We will stand adjourned until 1:30 p. m.

AFTERNOON SESSION.

Meeting called to order at 1:30 p. m., Pres. Kannenberg presiding.

Pres. Kannenberg—We will hear from Mr. Kubick—

Mr. C. Kubick—I live 25 miles from Chicago, southwest of here. I have three apiaries, two of them made enough to live over the winter and the other one, I have something like 3,200 lbs. of sugar to keep them alive.

Pres. Kannenberg—You are a sugar man, too, are you?

Mr. Kubick—In order to get my bees in good shape I should have had another ton. As far as the prospect goes, it is pretty fair, but they don't look as good as last year. The prospects were much better last year than they are this fall, but if we get rain, as we ought to once in a while, and probably will some time, then we will get a pretty good crop this coming season. Sweet clover is very good.

Dr. J. J. Brinckerhoff—50 miles southwest of here, Grundy County. No surplus.

Mr. John Dreuth—Indiana. 60 lbs.—120 colonies. For another year, no white clover, no sweet clover; our prospects pretty much the same every year according to the weather.

Mr. Kenneth L. Hawkins—I have nothing to report outside of total failure on account of foul brood. I have fed quite a good deal of sugar myself, and I think it might be the policy of the Chicago-Northwestern Bee-Keepers' Association members to go into the sugar business instead of the honey business.

Will County, Illinois.

Mr. E. H. Bruner—Cook County. About 20 lbs. of comb; about 40 lbs. of extracted for those that were working on sweet clover, and in some yards practically nothing. Some prospects for next year but nothing encouraging. Sweet clover has made some start but didn't do so well this summer as it should; the plants are not so healthy and strong as they ordinarily would be. Perhaps they will improve.

Mr. Fred Offner—Will County. 1,100 lbs., 98 colonies; prospects for next summer pretty good; quite a little of sweet clover around my place. It didn't get so large as it should but there is quite a little around my place.

Mr. Kildow—Putnam County. I would dislike to say what I got. I got 200 of extracted honey, 2 lbs. of comb honey; 107 colonies. We have no prospects for next year. Our clover has gone. We have a little sweet clover and possibly some fall flowers; that is all there is in our part of the country.

Pres. Kannenberg—We ought to elect a committee to audit the books. For the Committee on Resolutions I appoint Mr. E. S. Miller, Mr. A. Coppin and Mr. H. B. Blume.

For the Auditing Committee I appoint Mr. John C. Bull, Mr. John Kneser and Mr A. Bodenschatz.

We now have on our program—"Shipping Bees North and South", by Mr. H. C. Ahlers.

Mr. Dadant—He has not returned from dinner.

Mr. Kannenberg—We will take up the "Questions" now—

Question—Shall we indulge in the production of more bee-keepers?

Mr. Kubick—For my part, Mr. Chairman, I would say, no. It is not from a selfish standpoint either; it is from experience. I wish there were about a dozen eliminated from where I am, and I guess they will be this winter if it is cold.

Mr. Bruner—I think possibly you misunderstood the question—Shall we indulge in bee-keepers; the question was not, shall we indulge in more bee-keepers.

Mr. Bodenschatz—Mr. President, I think it is a good thing to have bee-keepers and more bee-keepers, because some of the older ones will fall off after a time and some one will have to take care of the others. The only thing I believe in—if one bee-keeper sells one colony to another party he ought to teach him anyway to take care of the bees; also, they should go there and work with them so that they will learn the difference between a diseased and a healthy colony; and if they get sick, then when there is anything the matter with them they will find out and go to him who sold them and get information from him.

Then the colonies will be kept healthy, and the more bee-keepers, in a way, the more honey will be sold, because the new bee-keepers go to their neighbors and let them know that they have honey to sell, and they will get better prices for it than some of the older ones; and that is my idea, to have more bee-keepers in that line.

Mr. Miller—It seems to be the policy of certain ones who are interested in selling goods to encourage beginners in the line of bee-keeping all over the country; it does not seem to me to be altogether a good policy, not only because of the spread of foul brood but because of the sale of honey. They will sell honey at low prices and put out honey for sale that is not of good quality, and it interferes with those who make it a regular business. They

make bee-keeping a secondary affair; keep three or four stands of bees, and the probability is they will get close to some one else who has a number of colonies, and in not caring for their bees properly will hurt the large bee-keeper.

I have one yard of bees near a small city. The people have noticed that I have been getting some honey around there, and everybody it seems is anxious to go into the bee business. They get a few colonies, and the result is that this year I got less than 10 lbs. a colony where formerly I got 50. It may not be on account of the people that have two or three or four hives, but on account of the poor season.

It seems to me, as in every other business, the one who is engaged in it in a small way, who does not have time to attend to it properly, really ought not to be in that business.

I have no objection to other people keeping bees—if they do not get too close to me, and keep them in a way that they ought to keep them, but the way most people who keep a small number of bees do is to encourage foul brood. I do not think it is a good thing for me to have more bee-keepers of this class. I believe, too, that honey should be sold for what honey is worth.

The great problem in the future is to sell the honey that we have raised, and I think we have enough in the market now.

Pres. Kannenberg — Any more answers to this question?

I notice that Mr. Ahlers has arrived. He will give us something on "Shipping Bees North and South."

Shipping Bees North and South.

Mr. H. C. Ahlers.

I wrote to the Secretary that I would be at the meeting, so he put me on this list and he gave me this subject.

I have had considerable experience in this line, having shipped ten full carloads besides many express shipments.

Now what has been the object of these shipments?

(Mr. Ahlers promised his manuscript for our report but failed to send it in—he got so busy shipping bees south. His talk was a fine one, we are told, and we very much regret not getting it. But we get a good deal of value out of the discussions that followed his talk. SEC. STONE.)

Mr. Baldridge—How much did you have to pay for shipping those bees?

Mr. Ahlers—$175 a car, New Orleans to Wisconsin.

Mr. Baldridge—You have to release the company from all damage?

Mr. Ahlers—No, sir. The company is always responsible for all damage that they do but I have never made a claim yet for freight. There is a certain amount of damage that always will occur but if the company sets my car on the side track for no reason at all, to pass a coal car through, they are going to pay the damage if any, and if there is a wreck they are going to pay everything and probably about $2,000 for myself.

A member—Do you ride in the car with the bees or in the caboose?

Mr. Ahlers—The conductor will tell you to go into the caboose—that is his duty; after that you can stay in your car. In the daytime I ride mostly in the car. It is very pleasant to say in there, sit in the door and see the country, and you can make things as pleasant as you want to. Carry some kind of bunk that you may lie down, have all kinds of things to eat and anything you want to drink.

A member—How many colonies in a car?

Mr. Ahlers—I am getting ready 500 next year. I have shipped 350 colonies and I had three story boxes. I know that I can ship 500. I have the whole thing figured out, and I will have the door space to set some tanks in and I will let my presses rest on those tanks.

Mr. France—Do you get transportation with your car?

Mr. Ahlers—No, a man must pay; furthermore a man must pay the full first class transportation, and he must pay it and he must go with the car or you can't ship your bees. They will ship your bees and they will ship them through, too. Of course if there is any damage and you are not with the car you don't know anything about it. They will tell you probably afterwards you did not pack your bees right. The fare from here to Louisiana is about $37.50; from here to Natchez or New Orleans, round trip. I will probably ship by way of Natchez, and then I will have to pay my fare to Jonesville or Black River, 30 miles. The car will

cost me $35.00 and all over weight will be extra.

Mr. Baldridge—How did you fasten the hives to the car so that they would not shove about?

Mr. Ahlers—They are set up endways against the car. I am going to put my stringers this time lengthwise. Set tight as they can one hive against the other, and when you get to your last row, when you get to the door, you nail an upright plank, anthing you have, I have some 4 x 14 there; they will hold it. Put in heavy cross bars and have wedges there. After the car runs and bumps there will be some slack; take up the slack the first chance you get. Put a wide enough piece at the bottom where your press rests or otherwise when your car slacks the nails may break off and your press will knock down and your bees will be all in a pile. I had part of my bees bumped together shipping once when they were leaning in all kinds of shape, yet they shipped pretty well. I had 5,000 lbs. of honey that time; then the railroad company paid for it besides.

Mr. Dadant—How long does it take to make the trip?

Mr. Ahlers—The bees ought not to be confined over 4 days. The route I want to ship on, the Missouri Pacific, won't guarantee to ship them under six days if Sunday does not intervene. I shipped them down from Illinois in three days.

Mr. France—Mr. Ahlers, if I coupled on to your car a carload of farm stock would I not get transportation with it?

Mr. Ahlers—I expect you would.

Mr. France—See the injustice then of being a bee-keeper.

Mr. Ahlers—I believe I have Mr. France to thank for this—They have reduced the minimum weight of a carload of bees, will cost $50 more. They will charge me just as much for 14,000 and 20,000, and for the balance will charge us high rate. I objected to that at the time, you may remember.

Mr. Baldridge—There is a gentleman in this room who has shipped bees in a refrigerator car. I should like to hear from him.

I shipped one carlot in a refrigerator car and they shipped through pretty fairly. I had probably 60 queenless hives out of 300, but the queens might not have been mated. I had all kinds of inferior queens, probably 60 of them worthless. I did not blame it on the refrigerator car. The refrigerator I think ought to be closed for 24 hours before you load, so that the bees get well frozen up before you start them off. My car was so hot that the ice melted before I got 20 miles away from there. Most of the ice was gone when I had moved 90 miles.

Mr. Bull—I shipped a car once and used the refrigerator car and didn't use any ice; it was not very hot and I had only 100 colonies.

I left the ventilators open while the car was in motion but as soon as it stopped I was sidetracked in the freight yard in Chicago and it kept me busy carrying water. Once before I used the open side car and came up to Chicago; there was a storm and it pretty nearly rained me out.

A member—May I ask Mr. Ahlers how much water you carried along to water the bees.

Mr. Ahlers—I expect about 200 gallons. I will ship from the south about the first of May. It will be about 85 degrees when I ship from there. It is very comfortable in light clothes at 85, but when those bees get packed in the car it is going to be pretty hot when the car is not running.

Mr. Baldridge—Mr. Bradley is the gentleman I referred to. I would like to hear from him. He shipped bees to Missouri at one time in a refrigerator car.

Mr. Bardley—Some years ago, at Libertyville, Ill. the honey season is from July 20th. I had 100 colonies very strong in bees, boiling over, and I knew of a Spanish needle locality in Missouri. I got a refrigerator car, iced it one day before we got ready to load it, and put 100 colonies in it boiling over with bees, and we loaded them in the night. It was in the last of July when the thermometer was 95 and higher in the shade in the daytime. We shipped them over to Burlington, Missouri; re-iced the car at Burlington, and shipped them down to within about 40 miles above St. Louis.

They went through to Missouri in fine condition, A No. 1. There was not a pint of dead bees in the hive, but it was cool in the car; it was chilly; and I think bees can be shipped successfully if the car is iced a day or so before the bees are put in, that the car may be made cold.

We got a fair crop of Spanish needle

honey; averaged about 60 pounds per colony extracted honey.

In Louisiana one season we loaded 1,100 colonies on barges, and then three or four seasons we shipped by rail, two and four and six carloads at a time. Mr. Baldridge has had some experience in that. We shipped them through in stock cars. The freight at that time to Chicago was $110.00 per car.

We put 300 colonies in a car and shipped some to Libertyville, some to St. Charles, some to St. Louis, Chicago, Kansas City, Mo. They all as a rule went through in good condition, but they were well ventilated. We shipped them south in November, and shipped them north the latter part of April after the honey season was over.

We bought twelve or fourteen hundred colonies of bees down there from the natives for $1.00 apiece and transferred them and put them into movable frame hives.

Mr. Baldridge has had some experience down there and up here in the same line of business.

Mr. Baldridge—I wish to state to the audience that Mr. Bradley is the man who had charge of the bees on the Mississippi River for Mr. ————. It had been well known that there were bees shipped up and down the river, but Mr. Bradley was the man in charge and knows bees.

Mr. Ahlers—I had the same man with me that you had with you and he is the man that left me when he got homesick.

Mr. Bradley—There is hardly a colony of bees down there but that was infected with foul brood the last year I was there—there were hundreds of colonies there. It is not safe to ship bees down there.

Mr. Ahlers—There is not a case within 200 miles of there that I know of now or anywhere in that part of Louisiana.

Mr. Braldey—Mr. Baldridge knows of an apiary at Materia Lodge, near Louisiana, where nearly every hive perished from foul brood; and in New Orleans and all about the city they were all infected with foul brood. I had a good friend by the name of Collins who lost all his bees. We had to get our bees away from there.

Mr. Ahlers—I would like to remark that this whole story would make a very interesting book, though it would not be very profitable for any one to finance it through as a deal.

Mr. Baldridge—I don't think there are many who had experience shipping bees from the south to the north or vice versa that care about following the bee business.

Mr. Bradley—Our business was not a profitable business in shipping bees north and south. We had about 20,000. Our fuel bill from New Orleans was $600, say nothing about the steamboat crew we had to keep. We only got part way up with our colonies and we had to put the bees on the boat and take them that way, where we put them ashore for the Spanish needle harvest. Our destination was St. Paul but we were too late for the season.

Mr. Baldridge—Mr. Bradley had a good backer; Mr. ———— was a rich man and could stand this.

Pres. Kannenberg—Any more about shipping bees?

Mr. Dadant—I would like to hear from Mr. Ahlers about his different manner of shipping, by the pound, or small nucleus, which one has given the best satisfaction?

Mr. Ahlers—I shipped about a thousand dollars worth last spring from Jonesville, Louisiana. The charges are reasonable now and if any one wants bees I believe that is the right way of getting bees from the south in the spring. A three frame nucleus that will get here or to West Bend, Wisconsin, by the 15th of May will build up to three or four store colony. I really believe the three frame nuclei are the most profitable for any one—clover honey, but if Spanish needle or sweet clover is wanted I would say two frame nuclei. I was selling my nuclei too cheap for 2 lb. cages and they didn't give satisfaction generally. I mean to be pretty good to my customers and I think I shipped too many bees.

Now by placing the combs with the sealed brood on the upper story over the excluder I managed to get all the young bees in the upper story. It was my idea to give people their money's worth. These young bees are very small when they are first hatched and after they warm up there for a day or two in the cage they seem to grow, and will grow that cage full and smother before they get to their destination, and I have had some loss that way.

And some water cans caused trouble, but that can be managed.

If the water cans are filled with water and turned upside down the little hole that the bees get the water from will rust and, after you clean that rust out, will rust again, and then it will work to perfection. That is a thing I did not know in the beginning.

Those cages were very indifferent; some worked well, some worked poorly and some didnt' work at all and some had too many bees and they suffocated.

At the last station up Hudson Bay, the parties there were all pleased, and some I didn't hear from at all. When I did not hear from parties I generally thought they were pleased or they would say something.

These cages cost almost as much as the nuclei boxes and they will not make any more kindling wood after you get done with them. I do not think the one and two pound cages are as big a hit as they claim for them, and I do not encourage buying them.

A member—Is not that a fine way to ship a case of foul brood?

Mr. Ahlers—You cannot ship it at all in a cage.

A member—If you ship three frame nuclei?

Mr. Ahlers—Sure. If you have got some, that is a fine way of shipping it out, too.

A man who is shipping bees is not supposed to be shipping any foul brood. I don't think any man who ships bees will willfully ship foul broody bees; not any more than a chicken man will boil his eggs before he sends them out for hatching.

I shipped combs of sealed brood with enough bees to cover them. Over half of them filled up with sealed brood.

Mr. Baldridge—I tried three comb nuclei of brood and a great many bees but I set that in place of a strong colony and fill up with empty foundation or combs, and I have as strong a colony as there is in the yard.

Mr. Bodenschatz—If you take a nucleus and set it in place of a strong colony, in a good many cases you get a queen.

Mr. Baldridge—I do not know as I ever lost a queen by setting them in place of a strong colony when they were busy gathering honey.

Mr. Dadant—That makes all the difference in the world.

A member—Would that not be robbing a strong colony for a weak colony?

Mr. Ahlers—Three frame nuclei is strong enough. If I get them there before the 1t5h of May I can ship them on the 15th of April if I want to.

Mr. Dadant—Mr. Ahlers is speaking about 3 frame nuclei to get them there in time enough to build up; Mr. Baldridge says when the honey flow is on; that makes all the difference in the world.

Mr. Ahlers—I doubt whether Mr. Baldridge would get any honey in our country at all by that time.

Mr. Oaks received bees from me last spring; I would like to have him give his experience.

Mr. Oaks—The nuclei I got from Mr. Ahlers came through in splendid shape; they did remarkably well and they filled a ten frame hive body overflowing with bees, and if we had not such a dry season they would have laid up an abundant supply.

Pres. Kannenberg—We will ask Mr. E. G. Bacon to give us a talk on "Country-wide Advertising to Increase the Sale of Honoy."

Talk by Mr. E. G. Bacon:

Country-wide Advertising to Increase the Sale of Honey.

I would prefer to speak to you briefly about some of the problems that the bee-keeping fraternity are confronted with, to increase the sale of honey.

In order to carry on a country-wide campaign to increase the sale of honey we must first answer three questions which confront us.

The first one is—Whom to reach. The second one—How to reach them; and the third one—Where is the money coming from to maintain this campaign?

I will answer the first two questions if you will answer the third.

Whom to reach? It is manifestly obvious that it is the general public that we wish to reach; and, bearing in mind it is the general public we wish to reach, the question is easily solved as to how to reach them.

Newspapers, magazines, bill boards and street cars, and such mediums as are generally used to reach the general public. A campaign to increase the sale of honey must necessarily be general in its scope and character; it must be educational.

It is not sufficient to tell the aver-

age writer to eat honey. You must tell him why he should eat honey. Most of us come from Missouri and we must be shown, and when you are telling the average reader why he should eat honey you are not talking about a food product that is always the same in color, texture or flavor, or that is sold under any uniform seal or brand, but you are just talking honey that may be light, dark or medium in color, and may be comb or extracted.

It may be one of forty or fifty different flavors according to the country or locality which has produced it.

A campaign of this nature could be similar to a campaign that was recently carried on by the orange growers of California.

This campaign told you how beneficial oranges were and that you should eat them.

Or you have seen the campaign carried on by a photographer in your town. The article goes on to tell you why you should have your picture taken, or the picture of your wife or your family or your relatives.

Only yesterday I was reading in the train in which I was on, coming down here, an advertisement on fish. It would not occur to me that you would need to educate the people on the eating of fish; yet there was a space of one-fourth of a page in several of the big daily papers telling you why you should eat fish; why it was nutritious and why it is preferable to meat. And then there is another factor that we must deal with:

In regard to advertising to increase the sale of honey and its supply; and when you are dealing with supply you are dealing with an uncertain quantity.

With many of you—we had no crop or a half crop; but on the other hand you may have a bumper crop next year.

Now we come to the question of money. You can easily see, in order to wage a country-wide campaign for the sale of honey, you must have lots of it else the investment is simply money thrown to the winds so far as any profitable result to the bee-keeper is concerned.

Then there must be organization back of this advertising, and get the money together for this campaign; and I ask you if there is a Bee-Keepers' Association of today that is so financially constituted that we can undertake a campaign of this nature.

But if you should decide, after having the facts in hand, that an advertising campaign country-wide to increase the sale of honey is not possible—then there is a middle path out of the dilemma, and that is, individual campaigning on the part of each one of you to increase the sale of honey in your own market.

Look about you in your own neighborhood and you will find there is a demand for honey which is latent, which is sleeping, and that all you have to do is to rouse it, and you will be surprised to note the results you will attain by carrying on such a campaign.

We will say you are in a community of some 5,000 inhabitants. You produce more honey than you can sell. I would like to ask you what have you done to increase the sale of your honey. Have you made a house to house canvass?

Have you used the newspapers for your advertising?

Just for fun try a 4-inch single column ad in your daily paper for a month and watch the results.

And, when you talk to your prospective customers, talk to them as you stand before them when you have a pound of honey.

You must be prepared to furnish your honey and let your prospective customer know where and when he can get it; make it easy for him to get, otherwise the money is lost that you spend for this.

We will say that there is a concern that wishes to introduce in your town a baking powder, or a new brand of coffee or easily prepared breakfast food. They rent a small space in your leading grocery store; have a table and a few dishes, an interesting young woman, and proceed to deal out samples.

You can do the same thing and can do it easier than an outside concern, and I venture to say that, if you went to your grocer to say you would let him sell your honey in this way after you had exploited it, he probably would not charge you a cent for the space.

In a nutshell, what I am trying to get at is this fact: That the demand for honey is knocking at your door if you will only hear it, and if the average bee-keeper will combine with his honey business a little energy and throw in little bits of personality, apply business principles, and not be afraid to risk a

dollar (for which he will get $2.00 back) —then he will sell all the honey he can produce. I thank you.

Mr. Grabbe—Mr. President: I would like to say a few words. I sell my honey. I am a German. I will try best to explain to you how I sell my honey.

I am a bee-keeper since I was a little boy over there in Germany. I came over here to America and I could not keep bees for years. Of course now I got bees and I got a sign—I keep a little store out here, a little bird store, not in Chicago, and if you would ever like to buy a good singing bird you can come to me; they are as sweet as the honey.

I keep a sign in my show window—"Honey for Sale, not produced by my own bees; but gathered by my own bees." I have a son and, when I made the sign, "produced by my own bees," my son said—"Father, you could be just as well a producer of young ducks."

Now the people pass by and see that sign. People come into the store and say—"You keep the bees referred to here?" "No, I keep them about five miles away from here."

The best thing is to make the people believe you sell honey. Make the ladies and men believe you have that honey. You can sell honey, and the people come round—Is it honey? It looks like honey; it tastes like honey; it smells like honey—is it honey? I make the people believe that that honey is gathered by my own bees. Last year I had nearly 4,000 lbs. of honey and I sold most every pound in my store. I get 50 cents for a quart. Of course the capital thing is that the people know that it is honey.

Now I never spent a cent for advertising, even not on my cards. This honey sign is outside and inside because my store is closed on Sunday, so closing on Sunday it is inside and I take it and put it on the outside. I don't sell honey or birds on Sunday, I get a good price for my honey. I make the people believe that it is honey, and when they know it is they will buy honey. Most of them are afraid it is glucose. That is all I have to say about my advertisement.

Mr. Bruner—I would like to ask what price honey sells for by the quart in Germany?

Mr. Grabbe—We sold honey always over there in Germany for about a mark a pound; get about $.25 a pound.

Mr. Bruner—The point I wanted to make is this: We are selling honey too cheaply in this country. We are not getting enough money for our honey in this country. If we ask enough money for our honey we can afford to pay some one to go out, and pay for it. The way to do is to get the money for your honey. Don't be afraid to ask people $.75 to $.80 a quart for your honey. They will pay you for coming to tell them about the honey and pay you for bringing it to them. Am I correct?

Mr. Bull—That is the whole thing—that is the whole trouble—you will never get any place until you put the price on it.

Mr. Ahlers—I want to say: I sell comb honey myself but I think, when you ask $.70 or $.80 a quart, people are not ready to pay it now. The honey that is produced in the United States would make fifty miles long. We could not sell such a crop of honey at that price. If you go to your neighbors and farmers and ask to sell them honey at this price they will say, "Oh, we have a lot of greens we will feed the children."

Mr. Woodman—How is it that Europeans produce five times as much honey per head as we do in this country, or more? People only have one-fifth as much money to buy with, and yet they buy five times as much honey and pay more than our people in this country pay for it.

It is lack of education. We have to educate the public up to the value of honey. And we have to have our pay for doing it.

People are paying for glucose; glucose is being advertised and demonstrated in every town. They are not doing that for nothing.

There are other concerns doing the same sort of business.

The Singer Sewing Machine Company is selling sewing machines, from house to house. They decided that the best way to do this was to tell each individual the value of the Singer Sewing Machine. They are not selling sewing machines for nothing. They are telling the people to buy sewing machines, but in particular the Singer Sewing Machine.

If we got out and told the people the value of honey, we would have no

trouble in selling the honey and we would get paid for the telling. This is being done. Mr. Bull and Mr. Ahlers can tell you; they can go next door to where a bee-keeper is getting $.15 a pound and sell honey for $.20. People believe I have the honey. They don't believe the other fellow is putting out as good honey as I am because I have the nerve to get the price.

A member—You will find 100 sewing machines in homes where you will find five homes that have honey.

Those five homes that have honey show that out of the 100 there are 95 that need honey. There is your field to show your honey.

C. Kubick—The rest of the hundred will not use honey; you cannot educate them to the use of honey. People that are buying honey are willing to pay for it, but those that are not using it, many do not want honey; it is not a necessity and is something they can get along without, while with sewing machines, that is different; they are a necessity.

In regard to European people and American: I have had a little experience with both. European people are honey eating people. They produce large quantities of honey and the people there eat honey. The American people do not. Where you get into a district where the population is mixed and a good many European people, you will sell honey, but in an American neighborhood you may sell a few sections of comb honey but no extracted because they don't believe in it. Wherever, too, you see beer used on a large scale, you sell no honey.

Mr. Bull—In regard to American people eating honey, I have sold a few pounds. When you put honey into every home in the United States you will have to produce 25 lbs. where you are producing one now and they will pay the price.

You can sell your neighbor honey for any price; you go to a stranger and attempt to sell them honey at about half the price you are selling in the stores, and you see what you will get; they will say they don't want honey; you can't sell honey at that price. Price is the last argument you have to use when you are selling honey.

Give quality and you will be paid your price.

Mr. Lang—I have had a little experience selling extracted honey. In the first place I could not get rid of it for it candied with me. I had it in fruit jars; it candied a little bit, and there was a German there in the town; he made them believe I mixed that stuff with lard. He says—"That fellow adulterates it or he could not sell it for thirty-five cents a quart. I heard this and I saw this German, and he said, "Yes, I said it." I said to him—"I will give you $500 for every ounce of adulterated stuff you find in that honey." There were four or five American people who heard me tell him that, and I never had any trouble since in selling my honey; I could sell more if I had it.

Mr. Bull—When you get the price up where it belongs it is not half so hard to make people believe you have honey as when you have something cheap.

Mr. Kildow—What is "the" price?

Mr. Bull—At least twenty cents a pound for extracted honey.

I get $1.00 for a five pound can; some places, $1.25; it depends on how far I have to go. For two pounds they pay me fifty cents; 10 lbs., $1.75. That is right around home; when I go farther away they pay me $2.00 for 10 lbs.

Mr. Kildow—It is evident to me that Mr. Bull has not been all over the territory. He has lots of territory to go over yet.

Mr. Bull—One thousand miles I have been.

Mr. Kildow—You will have a thousand more to go. Did you ever meet any bee-keepers who sold honey?

Mr. Bull—Yes.

Mr. Wilbert—What would you say if another bee-keeper sells honey to the same people where you went for one-half your price; if you charged $.20 and they charged $.10, for honey just as good as yours?

Mr. Bull—I sell about twice as much honey as they do. That is what hurts the honey business; if they would charge one price, but as long as one bee-keeper undersells I am afraid most of the others will have to.

Mr. Bull—I cannot produce enough. If I was to give it away I would quit now. If I have to sell honey for ten cents a pound I quit selling honey. When I work I am going to get something for my trouble.

Mr. Baldridge—I have had a little experience in selling honey for the last forty years. I get the same price for

liquid honey as I do for comb honey, exactly. I make no difference in price.

The worst adulterators in this country—on honey—are bee-keepers, by adulterating the price; that is the worst kind of adulteration. I sell to neighbors who can buy honey for ten cents a pound, and I have never for the last five years gotten less than $.24 a pound for liquid and for comb honey; for the last five years I have made no difference in price from one year's end to the other, and I sell to neighbors who can buy honey for ten cents, but they have confidence in my honey because I ask a decent price for it.

I would like to say this: I have talked with a great many bee-keepers over the state of Indiana in regard to the price of honey. There is only one way you get twenty or twenty-five cents a pound for honey, and that is, to ask it. Don't get weak-kneed—but ask the price and stick to it.

I have a man who sells honey in a neighborhood where one man sells it at 10 lbs. for $1.25 and he is making a commission on it.

I would like to know if anybody here does their individual advertising, outside of Mr. Dadant? I would like to know what they do.

Mr. Bruner—Mr. Bull does it pretty broadly. The best sort of advertising is the personal appeal. Get up in front of a man and tell him the truth. There are those who cannot do personal work; there are other means of advertising. That is the best way I know of to sell goods. There are exceptions. When you have something that ought to appeal to every person down the street, that is the best way to get at it. Advertising costs money. We are talking about advertising. I don't know of any possible way of getting bee-keepers together on a co-operative advertising scheme; I doubt if it would be feasible because of the variation in the supply. The orange people have the same thing to contend with but they make their sales accordingly.

Your advertising campaign for honey has to be laid out in advance. You have to put up your money for a co-operative campaign in advance, and you want to know whether you have honey to sell.

Concerns like the American Bee Journal might possibly help us in getting up some practical advertising literature for use in our local papers, booklets, circulars and so on, and that is the nearest it seems to me we will ever come to co-operative advertising on this proposition.

Different parts of the country have different crops coming on at different seasons. The trade requires honey for different purposes.

The legitimate object of all advertising is educational. The best advertising that is being run in the newspapers is merely a matter of education.

The gentleman a while ago compared the sale of sewing machines with that of honey, and said the people did not use honey, but they could be sold a Singer Sewing Machine; that one was put in nearly every home, either a "Singer" or some sewing machine. And why? The party buying the sewing machine knows how to use it and gets satisfaction out of it.

The American people as a rule think of honey as something to put on the table to eat. The reason the European people buy honey, and the reason we do not sell honey in the same quantities that they do, is because they use it for cooking. It is not put on the table so much as it is used for cooking.

American people do not know about honey; they do not know the uses to which honey may be put.

An advertising campaign, if it is undertaken, should be undertaken to educate the people as to the use of honey; tell them what honey is for and the different uses to which honey may be applied.

I know of a man who went into a certain territory to sell honey; the people asked him what it was for; they had never seen it on the table anywhere; they actually did not know what honey might be used for. The majority of people in America do not know to what use honey may be put.

The booklet that was gotten out by one of the supply houses was a very good thing, but the price of it was prohibitive. Something of that sort ought to be gotten out.

If the individual bee-keeper would start a campaign of educating the people to the use of honey, the result in the sale of honey might not be felt this year but it would build up a demand that would be felt next year. If people knew that they could use it in making cake and use it in tea instead of sugar, or in the many ways that it can be used you will create a demand

for honey that does not exist today. That is good advertising.

Pres. Kannenberg—I guess Mr. France can tell us a good deal about selling honey.

Mr. France—In regard to this subject of selling honey: We have pretty well thrashed out the subject of price—but to get the demand!

Now I was detailed by our National Association some years ago to come here with $1,400 to advertise honey, to make a demand for honey; make a show at the Pure Food Show. I could not see where it was going to create a demand—and I have yet to see the return for the money so expended.

$600 was left, and I have been censured sharply for waiting so long a time to use the balance.

I have been studying to know how most bee-keepers sold their honey. I finally went back to my indiviuual experience, and, if I could get each individual to do the same, we would have to hunt for some one to supply the United States with honey.

When I have had from 50,000 to 55,000 lbs. of honey, and cannot supply my customers, if more individual work would be done, we would wonderfully increase the sale of honey.

Now then—to create the demand: Until you get the people to know the value of honey, get them to want honey, and to use honey, they are not going to buy it—same as do the people in the use of the Singer Sewing Machine.

I will give you an illustration: One bee-keeper in our state, with 400 colonies of bees, has to buy honey to supply his trade. He keeps a book account, same as a business man would. He has the names of his customers in an alphabetical list, and he notifies these parties that if they desire his honey for next year they must order immediately. The result is, he wrote to me in the early fall: "I am sold out."

Let the goods sell itself. The moment a party buys good honey they want more. Their neighbors come in and taste this honey and are told about it, and they want some, and before you know it you are sold out, and it is very hard to find a place where you can get more to supply your customers.

But as Mr. Bruner has said—Don't sell one ounce of honey that is unripe honey; that will spoil the market.

Now as to where or how I used the remaining part of that fund:

I found that honey should be used not only for the table, but should be used in the home in cooking, et cetera.

And for that reason, speaking of my own experience, when I had a new customer, with their order went one of those little booklets about honey, and I found that the educational value of those booklets amounted to a good deal, and I bought them in a wholesale way and gave them away to bee-keepers—A little honey booklet of 100 uses for honey. True, they are published by one of our Supply Houses.

Now let me give you a little information: While I was giving these away to the bee-keepers, they only paying the postage, one man in Iowa wrote me: "I have that little bundle of booklets, have had it for two weeks and have as much honey on hand as I had before."

I wrote back to him: "Why, my dear sir, put a candle under a bushel and it does not give any light."

Let the Mrs. try some certain recipe, using honey, and invite in the neighbors, who ought to be good customers and who are not. This was tried, and before they left eight five gallon cans were sold and a contract was made with the Sunday School Superintendent. The week following he was to furnish candy-honey, a square tube for each Sunday School student, on the Christmas tree.

Now, when he got the Sunday Schools eating honey, his honey was all sold and he wrote me: "Where can I buy more honey?" He gave each one of them a booklet as he sold the honey; he just started an opening for the goods, and each individual can do the same thing in the same way.

Mr. Wilbert—Yes, but what about the price?

Mr. France—I cannot sell at the high prices that some do, from the fact that that is a matter of education, but I do not believe in selling at prices so that there is no profit. I sell for 12 cents for extracted honey and 22 to 25 cents for comb honey, that is as low as we have been selling. At wholesale, that is another proposition.

There have been some remarks on the consumption being greater in European countries than here. If there is any one here who knows anything about this, I would like to have them

answer this question: Is sugar as high there as here?

Mr. Bodenschatz—No, it is cheaper. It is about 9 cents a pound, between eight and nine cents; German pounds are heavier than American.

Mr. Miller—There is one point that has not been taken into consideration. Mr. Bull sells honey in small packages; it costs money for packages; it costs labor to put them up. The honey has to be melted before it is put in packages.

Mr. France sells his honey in large quantities, and of course he can sell it at a lower price. It is not worth so much in 60 lb. cans as when it is put in small packages, two, three or five lbs.

Mr. Wheeler—I would like to ask this man from Germany one question—In regard to the manner of the German bee-keepers dealing with one another. In regard to the purity of their products.

There is one point that has been missed, that is, the inclination of each individual bee-keeper to injure the sale of his brother bee-keeper's goods by intimating that his is better. You read that in the daily paper, and bee-keepers have sort of harped on this: Our honey is better than so and so's.

Glucose people take it up and accuse bee-keepers of adulterating honey, and there is a general feeling of adulteration among the public. I want to ask this man, if in Germany the people there accuse one another of adulterating honey, as they do in the United States?

Mr. Lang—The question is Is such honey as good as it is here?

Mr. Wheeler—No, but is the accusation made there as to the adulteration of honey?

Mr. Lang—No, not there.

Mr. Wheeler—They believe in one another.

Mr. Lang—People are not so untrustworthy as they are here.

In America, generally speaking, if you want to sell something and if a man does not know you he thinks you are trying to beat him.

Mr. Wheeler—There are people who try to make others think that their honey is the only pure honey.

Mr. Lang—I never heard anything of adulteration of honey in the old country.

Mr. Grabbe—That could not be done over there at all; it is a law; they make a law for breaking a law.

We talk about bee-keepers forming a society, clubbing together. I remember, when I was a little boy over there in Germany, when my uncle went to the first bee-keepers' convention, when he came home he told my grandmother: "I never found better people than bee-keepers are."

Those other men what mix up that honey with sugar (bee-keepers here in the United States are not such mean men to do such a thing)—over there in Germany it cannot be done.

Mr. Wheeler—I don't accuse anybody of doing it. I don't think they adulterate it.

Mr. Grabbe—In the old country almost the same price was got for honey as for butter. And another thing over there. I have been over there a couple of times from here, and at the hotel over there, for breakfast, always you have honey on the table; they eat very much more honey over there than we do here. I asked my aunt, "What are those people buying so much honey for?" "They say if you eat honey on the New Year they will be sweet the whole year." Now if we eat honey here we will get much sweeter.

Mr. Wheeler—The point I want to make is, and I think it is a good one for bee-keepers to think about: In the old country the people believe in each other; they believe each other is honest, and they do not try to accuse eath other of being dishonest, and in that way they sell more honey.

You have to know people here, and know them personally, before they believe that what you have is good stuff, because they seem to think that bee-keepers as a rule adulterate their honey. I do not have any more trouble than the rest of you but it is in the air.

I talked to a man the other day who got hold of sweet clover honey. He said—"It doesn't taste right. It has a kind of muddy color; it is no honey at all. I know good honey." And I could not persuade him otherwise. He bought my honey and he seemed to think it was pure because the taste suited him.

I think if people would use more care in selling their honey product, and not try to knock the other fellow, they would succeed better.

Mr. Dadant—Mr. President: Since we last met here our Vice-President,

Mr. Cavanagh, has left us, and I move you that the committee write up some resolutions sending our sympathy to Mrs. Cavanagh, and that a set of resolutions be spread on the minutes of this meeting.

Motion seconded and carried.

Mr. Miller—I would suggest that, if there are other resolutions to be offered, they be handed in.

Pres. Kannenberg—The next thing on our program is a talk on Bee Cellars —by Mr. E. S. Miller.

Bee Cellars.

(By E. S. Miller.)

Mr. Chairman, Brother Bee-Keepers:

It is estimated that in the northern part of the United States the average winter loss of bees wintered out of doors is between 20 and 40 per cent. I think it was the Secretary of the Massachusetts State Bee-Keepers' Association that sent out several hundred letters to prominent bee-keepers and others asking them to report the number of losses, either two or three years ago, and from this he made an estimate that about 40 per cent of the bees were lost in that year in wintering.

Now the losses in cellar wintering are nearly as great as the losses of bees wintered outside, and chiefly because the proper conditions are not maintained.

I believe if we winter bees in the cellar the cellar should be properly constructed. Several conditions must be observed in the construction of bee cellars and of the bees before they are placed in the cellar.

I think that as early as August we should go through the colonies and see that every colony has a good queen; that there are plenty of bees and plenty of stores.

I make a practice of strengthening all weal colonies by taking queens away from colonies where there are undesirable queens, a colony of queens that are very old or not pure blood.

In August, and again in October, I lift the hives and if there are any light combs I put in plenty of combs of honey.

Again, before putting the bees into the cellar I do the same thing.

If I find it necessary to give them combs of honey I do so, removing the empty comb.

It is surprising to find how much a colony will go down in weight between the first of October and the first of December.

Now so much in regard to the condition of bees before going into the cellar.

In making a bee cellar there are some important things to take into consideration:

One is temperature.

In order to have proper temperature in the bee cellar, it should be entirely underground. The top of the cellar should not extend above the surface of the ground.

The ordinary house cellar constructed two or three feet out of ground is not a suitable place for keeping bees over the winter.

Another important thing is the ventilation.

I know there are plenty of people who say that bees require but little ventilation.

Some people claim you can cover the bees all up without any means of allowing air to enter and they will come through all right. I tried that and nearly all came through all right. I kept them in a sand bank; twenty or thirty stands; two rows face to face, with a space of two or three feet between, and a covering over that sand, and only two colonies were lost, but the air must have come through in some way.

There are other people who claim that in ventilating the cellar all that is necessary is to have an opening at the top.

I have here attempted to make a drawing to show what I mean by that.

I think it was Mr. Hutchinson, editor formerly of the Review, who claimed that. We had quite a little discussion over it. He claimed the opening from the top into the cellar was sufficient. I disagreed with him.

His cellar was constructed something upon this plan. (Illustrating.) Here was the opening, probably 3 ft. long, 1½ ft. wide. His claim was that that furnished sufficient air. I do not think so.

I bought a piece of ground with building and cellar a number of years ago. We had that kind of an arrangement, and I found in the spring of the year—(The old gent of whom I bought it said that was to be left open in the winter so that the bees could get air). I tried it and the result was I lost half of the bees the first thing. I tried it

another year, shutting it down, and the loss was not so many.

A pound of air occupies 12 cubic feet. If heated it expands. If we put the bees into the cellar and the weather turns cold what is going to happen? This warm air being lighter will pass out slowly and the cold air run in, and we have nothing but cold air in there and moisture.

Suppose the temperature rises outside and it gets warmer outside, then what is the result? Will that cold air go out? No, it will stay there nearly all winter and all next summer.

The cellar is warm along this time of the year (December) and cool in the spring because the cool air gets in and is heavier and cannot get out.

Now another thing in regard to the moisture. If air contains moisture and it does where the gees are eating honey and giving off moisture in carbon-dioxide; if the air contains moisture and cool air comes in there it will be damp and cold, and, inside, the hives will be wet; and water will run down from outside the hives. Bees will lose in number; many of them will die, and they will also lose in vitality, so that in the spring you are going to lose more bees because they have not the vitality.

After I had tried this cellar, I made this sort of arrangement: (Illustrating)—Here is the cellar; here is the workshop; up there is an attic store room. Here is a stove.

Here is what I did: I put in a 6-inch tile, extending out this way about 50 feet. I didn't have any chimney at first but I found when the wind was blowing from the west, southwest or northwest the air passes through this tile and the wind blew through the tile as hard as out doors and brought air in here to the bottom of the cellar. As that air was warm with bees it would rise towards the ceiling.

I built a chimney from the bottom of the cellar up through the building above extending at the top a distance of 25 or 30 feet.

The opening is at the bottom, not at the top.

I found by putting the bees in this kind of a cellar they wintered almost perfectly as long as the air is warmer in the cellar than outside. There will be no condensation—but in the spring, when the air gets warmer outside, then the air coming through there will cause condensation if there is sufficient moisture, but a draft through there is sufficient to sweep out that moisture.

In the last six years my average losses have been less than one per cent.

I would like to know if there are any out of door bee-keepers who can beat it.

In one yard we never had a loss, winter or spring, in two years, that is from the time the bees were put in until fruit bloom; two seasons and no loss.

In other yards there was a loss of a couple of colonies because they were not in proper condition when we put them in in the fall; they probably were queenless.

You notice this, here, (illustrating) is the ground line, that the top of the cellar comes even with the ground. This is to help keep a constant temperature.

The air passes out at the bottom; it goes in at the bottom; as it is heated it rises. The air is pure. The bees come out strong and in excellent condition in the spring.

Mr. Wheeler—What does the stove have to do with it?

Mr. Miller—Nothing, ordinarily, but if we have a large number of bees in the cellar and we are afraid there might not be air enough—if you start a fire in that stove it will increase the current of air up that chimney. But at nearly any time during the winter if you hold a lighted match over here the current of air is sufficiently strong to extinguish the flame.

That chimney works all the time. This works only when the wind is in the right direction.

I tried putting a similar one on the other side but I found the air passes through considerably, but the chimney is the thing that works all the time, carrying a current of air through the cellar.

I found by testing the thermometer at this intake that in warm weather when the thermoneter outside got up to 60 or 65 degrees, the temperature lowered very greatly in passing through here; in cool weather the thermometer would rise.

I have some readings here I took a year ago. I will give you some of those readings to show the change of

the thermometer as the air passes through. I took probably twenty different readings along through February and March; some of those readings when the thermoneter was down to zero and I found that in the intake the thermometer had been raised 15 or 20 degrees.

I took other readings when the thermometer outside was from 60 to 65 degrees, and I found it had been lowered.

The average thermometer inside here was between 50 and 45 degrees. I would rather have had it higher.

I have in a double floor since, so as to keep it warm, and the thermometer can be kept higher.

Another point I want to call attention to is this: The cellar should be kept as nearly air tight as possible to keep out the cold air. If the cold air gets in there you can hardly get it out unless it is by means of this chimney.

If you have no outlet that cold air will stay in all winter and the bees will be cold and damp.

The cellar extends 7½ feet from ceiling to floor.

This cellar is built of concrete.

I have three cellars of concrete cement blocks.

A member—Do you place the colonies in tiers?

Mr. Miller—Yes. I formerly put three hives high; then four; and now I am piling them six.

I place the back of the hive to wall, leaving the front hollow. I do not remove cover or bottom board, but give them 7-8 inch space across hive. Place one hive directly on top of the other.

In removing the bottom board it is apt to disturb the bees, and in this case it is not necessary because they pass through the winter all right without it.

Mr. B. F. Kindig—What is the size of the cellar, and what the size of the intake and outlet you use?

Mr. Miller—In this particular cellar, 6 inch intake, but I advise a larger one, 8 or 10 inch intake. The cellar is 18 x 20, outside.

I have another cellar built especially for bees; the other one is 16 x 20; it will hold very nicely 100 colonies; but you can put 200 in just as well.

If you have 200 in there the thermometer is higher and with high temperature you have more current and the air will pass through more rapidly.

I reside in Valparaiso, Ind.

A member—What is the idea of having the intake so long?

Mr. Miller—To warm the air as it passes in to the bees, for one reason. Another reason is so that you can get a horizontal direction in the tube. The wind moves horizontally and not vertically. The wind is the force that carries it through there.

The wind pressure carries the air through the underground tube.

Mr. Coppin—It does not make much difference in regard to which way the wind is blowing; it is the difference in the thermometer; the temperature is warmer in the cellar than it is outside.

Mr. Miller—Through the chimney, yes.

And the more difference there is in the temperature, the more air will travel; and that tile, the longer it is—it should be long enough for the air to be tempered on the ground before it reachers the cellar, or else it will cool it off too much.

And then again, if the thermometer on the outside gets to be the same as the temperature on the inside, your ventilation will stop entirely (unless the wind blows).

Then your stove will be necessary in the room above to start a little fire; that will give you internal heat and start your ventilation.

So it is necessary in order to have ventilation all the time that you should have that stove in the upper room and not have it down in the cellar, because that would interfere with the thermometer of your cellar; but have it in the room above and it will not interfere with the thermometer in the cellar.

It will just raise the temperature in the flue and the draft will go in the tile and up the flue and give the ventilation the bees need.

Mr. Miller—If you have clay ground you'd better use vitrified tile and cement joints.

If I had time I might show by chemical mathematical equation just how much oxygen these need.

Mr. Coppin—I experimented a little one time. I had 100 colonies of bees in the cellar and the temperature got to 49 in the cellar and 49 outside, and above the cellar I had a stove in the room, and I went and put a thermometer in the room above, went into the cellar and measured the air that was traveling through the flue into the cellar and found there was 640 cubic

feet per minute traveled, and I went up above the stove and found the thermometer was 70 in the flue.

I had 100 colonies of bees and 640 cubic feet per minute of air.

How much air the bees required I do not know. That would be enough for six men, a horse or a mule; I do not know how much the bees require.

In order to produce heat, bees, or any other animal, must consume oxygen.

If we were to estimate that from December 1st to April 1st, about 120 days, a colony of bees will consume eighteen lbs. of honey, 100 colonies in summer would consume 1,800 lbs., or 15 lbs. a day.

Taking 15 lbs. a day would require 16 lbs. of oxygen.

It would produce 22 lbs. of carbon dioxide and 9 lbs. of water.

Now 16 lbs. of oxygen would occupy under normal pressure a temperature of about 200 cubic feet; about one-fifth of the air is oxygen; so it would have to have about 1,000 cubic feet of air per day to suply 100 colonies. Now one thousand cubic feet a day would mean 40 cubic feet per minute.

The cellar must be ventilated to give them oxygen and in order to carry off water vapor.

I assume here that all the oxygen they breathe would be used up but it is not.

I do not know what percentage of oxygen is taken out of the air by respiration of the bees, but nearly all.

It would require not one thousand but several thousand cubic feet of air per day to supply that number of bees and we cannot get that by making an opening in the top of the cellar alone.

If we do not give the bees enough oxygen they will lose in vitality but we will lose in bees.

Dr. Brinckerhoff—Have you noticed a difference in bees in vitality in the upper tier and lower tier?

Mr. Miller—I have noticed this, that the upper tiers are brighter because the temperature is higher at the top of the cellar than it is at the bottom of the cellar.

After a large number of readings I found a difference of 1 to 2 degrees up near the ceiling and near the floor.

It is hard to tell about vitality because ordinarily in putting bees in the cellar we have to put the light colonies at the top because they are not so heavy to lift.

On February 24 the temperature outside was 12 degrees; at the intake it was 32 and at the outlet 40 (a light wind).

On March 2d the temperature was 2 degrees above zero outside. At the intake it was 18, showing a difference of 16 degrees between the outside thermometer and the thermometer inside where the air passes through the intake.

Another reading: On the 19th of March the outside temperature was 63 degrees and at the intake it was 53, showing that the air was cooled 13 degrees in passing through the tile.

This shows that the tile has some real as well as theoretical value.

When it was 63 degrees outside and 50 at the intake, the thermometer inside was also 50.

Mr. France—How long is that tile?

Mr. Miller—That tile at that time was about 40 feet. It should be at least twice that; it should be made larger and longer.

Mr. France—It goes in 7½ feet under ground?

Mr. Miller—Yes, it goes in near the floor.

Mr. Miller—A gentleman from Idaho wrote me about wintering bees in the cellar. He had 1,000 colonies and he wanted to put them in the cellar to winter.

I suggested to him, instead of running the tile in there for that number of colonies, I would build a room and have the air go through the room and modify the temperature before the air goes through, by artificial heat.

Mr. Dadant—As I understand it, this is closed four sides?

Mr. Miller—I have a hatch way outside, opening in top, but I close that up, windows double boarded, filled in. In the cellar way I have a tight door and a door over the hatchway.

Mr. Schmidt—If there is much moisture it shows the temperature is too low, otherwise water would not collect there.

Mr. Wheeler—Do your bees get enough water?

Mr. Miller—Yes, they do. I have never known the time when they were too dry but I have known the time when they were too wet before proper ventilation was put in.

I have carried 100 colonies in a cellar, like this, with a temperature 38 degrees, without losing a colony, but

that is too cold; it is much better to have it eight or ten degrees higher.

A member—Do you have any trouble with the entrance getting clogged with snow?

Mr. Miller—Put boxes over to keep the snow out; lift it so that the air can get in.

Mr. Rattig—Is there any time when the cellar would probably be too cold during the winter?

Mr. Miller—As I said a while ago: This cellar kept almost at a constant temperature of 38 degrees, all winter; that is too cold. I believe the time will come when we will consider the proper temperature to be not more than 45 degrees; I think that is the general standard.

Mr. Miller—Dr. Miller has had some experience with that. Dr. Phillips was out to my place and went to see Dr. Miller. He wrote me afterwards that the temperature of Dr. Miller's cellar was higher than mine and his bees were in better condition.

Dr. Phillips claims that the bees are quiet up to 56 or 57 degrees until they begin to get active on account of the heat.

Mr. Baldridge—At what point in the cellar do you place the thermometer?

Mr. Miller—At the intake—at the outlet, and near the ceiling and the floor. According to the reading; I have read this temperature about the middle of the cellar and about 1 1-2 foot from the top; and I have found, in every case where I have measured it, the temperature at the outlet was the same as the temperature at a point near the ceiling.

Mr. Rattig—What would be your opinion if you have to have a fire overhead to lay a slide that would be almost air-tight and let it draw the heat down, or made a draft clear around the foundation and let it go out?

Mr. Miller—The air would go down because the height of the chimney is above where it circulated down. If we are going to pass warm air into the cellar I believe we should be exceedingly careful or we will get the temperature too high.

Mr. Wheeler—Don't you think the natural temperature of the earth 10 feet below the surface is nearly 45 degrees and if you shut up the outside naturally it would take care of the right temperature?

Mr. Miller—I do not know exactly what the temperature would be. I imagine it would be less than 45 degrees in cold weather, and the heat of the bees would help to raise it.

A member—The outlet should run up because warm air is lighter and prevents it from rising.

Mr. Miller—The outlet of the air must go up because warm air rises.

Mr. Wilbert—Would it make any difference if it were straight from the bottom cellar floor up?

Mr. Miller—The only reason for slanting it up is to get to the top of the ground.

It should run to the west because the prevailing winds are from the west.

Mr. France—I have five constructed almost the same, with one difference in the construction:

I was fortunate in each of my cellars to select a slope of ground to the southeast, by which this could be a gradual decline in case of water, it is likely to drain.

I have a doorway near the ceiling. That is kept tight except late in the spring. When the temperature gets too warm in the cellar, with the heat of the bees, then I can open this and get it down to 42 degrees up to fruit bloom.

Dr. Phillips is bringing a point to bear we had not thought of seriously: That every particle of honey that the bees are consuming is about 20 per cent water, and we have got to make provision for the escape of that moisture, as the moisture will accumulate and form a dampness and tire out the bees to get rid of that by circulating of bees.

Mr. Schmidt—I have a bee cellar too, built of concrete walls up six feet high, 60 feet long, wide enough to hold two tiers, of solid roof. I put my bees into that cellar, pack them in cases; set them three high, both rows open with ventilator in door; the wind will pass through and give the proper ventilation, and my bees will come out fine every spring.

Mr. Wheeler—Are your bees at the top of the cellar?

Mr. Schmidt—Yes.

Mr. Wheeler—The temperature of the ground, you consider, will keep your cellar cool until fruit bloom.

Mr. France—You want your wall underground if possible.

Mr. Schmidt—I keep my cellar about

32 degrees only, as low as that, and then they are nice and quiet. They are packed in shavings, you understand.

On the first day of March I set them all out again.

Mr. Erbaugh—I would like to say a word in regard to Dr. Phillips' investigations, and Mr. Clark. They have found that the best temperature—the temperature at which the bees will remain quiet the longest—is 57 degrees, but at this high temperature they do occasionally need water. They get too dry; instead of the combs becoming mouldy, the bees need water.

Dr. Phillips says that 57 degrees is the best temperature.

Mr. Wheeler—I winter 300 or more hives in one cellar, all underground. I keep it as tight as I can get it. I do not pay any attention to ventilation, but there is a four inch drain. I do not object at all to the hives being wet. I have never found that water is any detriment.

My combs will be mouldy in the spring, and I find the bees at the bottom are always the stronger. I find that the ones at the top are weaker; but I do as Dr. Miller does: put the light ones at the top.

Mr. Bull—In wintering above ground you have not so much moisture, and you do not need so much moisture, because my temperature in my cellar is lower than 40. Sometimes it gets down to as low as 20, and it is all right. My bees are perfectly quiet and come out in the spring and swarm in May.

Pres. Kannenberg—Well, they know you.

Mr. Bull—I had swarms the first of May last year.

Mr. Miller—I might add one point in regard to bee cellars—In regard to the cost. A good cement bee cellar, 16 x 20, will cost approximately $250; in this part of the country if we wintered those 100 colonies out of doors and lost one-fourth of them, and paid for double walled hives and packing—it does not take very long for a bee cellar to pay for itself.

I put 123 colonies in bee cellars in five hours, alone, not long ago.

A member—What do you do in early spring?

Mr. Miller—I do not set them out until along about the first week in April and they are all right.

Mr. Schmidt—I set mine out the first of March. They are all packed and will not fly until it gets warmer.

Mr. Miller—Another point is: We have to take into consideration the cost of labor and depreciation. Hives that are kept in the cellar, and are kept dry, have very little depreciation; they will last a lifetime.

If you count up the cost of depreciation, etc., you will find that a good cellar is the cheapest and easiest, and the best way of wintering bees. We have to have, of course, loss of colonies outside.

Mr. Schmidt—I have wintered in the cellar several winters that way with great success.

Mr. Dadant—Wintering bees in the cellar I think depends on the locality. Where your honey is such that the bees will winter on it, if you have not clover or something else like that, cellar wintering is best; but suppose, like three years ago, we had honey dew. The bees will not winter on in the cellar on that. They have to get out and fly every time they get a chance.

Mr. Roehrs—I think it depends upon locality, when we should put bees in the cellar and take them out. My experience around Chicago has been this: If I can manage it, the later I put them in the earlier I can take them out, the better for me. I understand Mr. Schmidt very well when he refers to packing bees.

I pack my bees in the fall and, when it gets cold. I will put my bees in the cellar, but I will get them out in the spring early and pack them again.

I put my bees out as early as the first of March if I can do it. I have double walled hives and pack them carefully and my bees do better than any way I have tried.

I will not gainsay that if you have a bee cellar that is perfect, according to your locality, you can do better; but this is the way I find out for myself in my locality.

I believe the longer you can have the bees outside, the better.

Mr. Dadant—Mr. France has had lots of experience with cellar wintering and outside packing, we would like to hear what he thinks about it.

Mr. France—For a good many years we used to winter outdoors. We wintered about 600 colonies. I had to keep count of the colonies and in the Spring give a report to my father.

I had to report in the spring, and

when I told him that such a colony was dead I had to report the reason why.

But this taught me some good lessons.

The hives that we used, in substance, for the last two years have formed our wood pile and I have quit using that kind of hive. The cost in losses by outdoor wintering would pay for a bee cellar.

I put up a new cellar this fall, 15x22. The cellar alone, ready to put building on, cost me $90.00. Put a bee house above for the convenience it would furnish. If there is a leisure hour during your convention I would like to speak of it.

Mr. Rattig—About building a cellar on the side of a hill, it would be necessary to double wall where one end would be exposed to the weather. Would it be proper to make the cellar double walled and fill in?

Mr. France—It would be better to do that.

A member—My cellar is built on the side of the hill. My south wall is built up, boarded on the inside and filled in between with dry sawdust; this stops the cold all right; I walk right in from the level, right from the outside.

Mr. Dadant—Here is a question that has come in.

Question—Does Mr. Miller find any saving in stores by cellar wintering; if so, how much?

Mr. Miller—I do not believe I can answer that question. I do not know just what consumption of stores would be outside, although I tried wintering outside for several years and lost about from 40 to 50 per cent of bees when I did so.

I have estimated that it is about fifteen pounds. It might be less; some years more and some years less.

I have thought of weighing the hives in and out of cellars to test that out but found there was a great deal of labor connected with it.

Mr. Dadant—We want to hear from Mr. France on the convenience of that cellar he spoke of.

Mr. France—There is one thing I would like to answer in regard to this cellar wall being out of ground:

For convenience I always selected my outyards on sloping ground to the southeast; that would leave the lower side wall necessarily out of ground. I saved the soil that came out of the cellar to back up with inside with the exception of the runway which is long, with double doors in through so that we can go in on the level from the yard. I have an abundance of inlet and outlet for fresh air. I use 80 feet of six inch tile, coming in under the cellar wall for inlet, and a foot square box tube from bottom of cellar to roof of house above for outlet. Have a hinged door in outlet near ceiling to open in case the cellar gets too warm.

The cellar walls should be all underground thus avoiding outside weather to affect inside temperature.

Another thing—We used to have a Wisconsin man who came down here, who wintered his bees by sealing that cellar and putting sawdust in. He has now passed away. I was down there to help the boys finish up the honey season. I called their attention to the fact that the floor was sinking. There was quite a crop of honey on the floor but the floor was sinking.

They found that the sawdust packed between did not get ventilation, and the result was dry rot, and you could pick the joist with your fingers.

If you pack absorbents between cellar joists it will soon dry rot the joist. Better have dead air space and packing over floor above.

I advised them that dead air space would be much better.

In all my buildings I have paper lined on the underside of the joist and little common forest leaves put on the floor in winter; then the joist will not dry rot.

As to the convenience of cellar wintering:

It used to require, when labor was cheaper than now, more men to produce less honey than now.

We had to have one man whose business it was to attend to the faucets; brought the honey from the extractor in pails and put it in the strainer, and then in cans, and put it in the wagon.

Now that is overcome by having a bee house and bee cellar.

It is a pleasure to me now to produce extracted honey. I have several out apiaries with beehouse over bee cellar at each apiary, and the hives and supplies remain in the apiary.

The honey as it comes from the field,

the whole super is wheeled directed into the building.

From 75 to 85 colonies can now be extracted in a day.

We can get home with the honey in time for supper and go to another apiary next day. We place the escape boards the day before extracting, so that the bees on arrival are out of the supers. In a few moments after arrival, the wheelbarrow with two hive bodies of 10 Langstroth frames well sealed go into the beehouse by the side of boy uncapping combs. These are exchanged for two hive bodies of extracted combs which are exchanged in apiary for more full ones.

One man at the extractor keeps five of the old style uncapping knife men pretty busy. Now the one steam knife uncaps easily all combs, while one 6 frame extractor does the rest.

As the combs go into the extractor, which is bolted to the floor, the faucet is left wide open on the extractor so that the honey while it is warm from the hives runs through a tin tube which runs through the floor, to the strainer and storage tank below.

There is no one up there to watch the faucets—and no more honey spills. At the close of day your honey is ready to can; one boy can quickly draw off the strained honey into 10 gallon milk cans to be loaded into wagons for home.

I put in the heaviest milk cans to transfer the honey from the outyards to the home yards.

I also have a tin trough under cappings which conducts the honey to the same tanks below.

These conveniences in the extractor have disposed of two hired men per day in the yard, and it is not easy in my locality to pick up anybody and everybody. And my little boy thinks it is fun to take care of the honey that we can extract in a day.

Let me give you an illustration of what one man is accomplishing by having a bee cellar:

The evening before he wishes to extract, he goes out and places his escape boards, and he finds his bees out of the supers on his arrival in the morning.

Before breakfast next morning he is able to wheel into the beehouse as many hive bodies as he can extract during the day, which is about twenty to twenty-five a day, with his other work. He is working alone, having his little girl to help him.

He has a hive lifting device by which he can lift the hive body off from the hive without any extra heavy labor and swing it around and lower it on the wheelbarrow.

Wheeling that to the house—with small pulleys it is hoisted to the room above the cellar into the beehouse.

A gasoline stove is lighted before breakfast so that he keeps some heat up through those hive bodies.

After breakfast he starts the engine going and goes up stairs, and with a steam knife and this frame reversible extractor he can finish up the day's work and the honey runs through a tin tube in floor to strainer and storage tank below.

Mr. Rattig—How is the strainer made?

Mr. France—A round can with a partition running to within a scant half inch of the bottom. The honey goes in on one side and has to run underneath and up on the other side.

In this first inlet side we have a tinned wire cloth by which all particles or cappings are caught.

The first strainer is about 30 inches in diameter and 2 feet deep.

Mr. Dadant—It simply goes in there gradually.

Pres. Kannenberg—What kind of wire have you in front?

Mr. France—Regular screen wire, only it is tinned to prevent corroding or rusting.

There there is a faucet at the bottom of that gravity strainer.

Mr. Wheeler—Do you find that gravity strainer does the work better?

Mr. France—So much better that I have discarded the cheese-cloth strainers; the gravity strainer seems to do so much better. There are some little particles that will get through cheese-cloth that do not go through the gravity strainer.

I do not want it to stand too long; I think if it stands too long it changes the flavor to some extent—the aroma that is in the honey; the longer it stands the more we lose of it; and when honey becomes granulated and is warmed over we lose that prime flavor.

Pres. Kannenberg—Are there any questions?

Mr. Dadant—Tonight we will have Mr. Mosier's paper on Sweet Clover.

The farmers of Illinois are going more and more to the fertilization of the land.

If we could get the farmers to use sweet clover we would have a honey flow every year.

Question—How shall I feed bees in winter with no honey in sight?

Mr. Bodenschatz—I think the best thing is to use sugar, candied or syrup.

Mr. Wilbert—Which way would you make your candy?

Mr. Baldridge—Is that question—How shall I feed bees in winter?

Mr. Dadant—Yes—"with no honey in sight"?

Mr. Baldridge—I feed them in September or in August.

Mr. Wheeler—Why is that question always put in a bee convention, Mr. Chairman? I do not think it is the place for it.

I think the Journals or the bee papers will tell you what to do.

The feeding of bees: Bee-keepers bring up that question nearly every time we have a meeting. We are told in every periodical that is written how to feed, and how to mix it and what to do. It is used as a handle against us. I do not blame you for wanting to know something that you do not know, if you do not, but at the same time every paper that you get hold of will mention this.

Pres. Kannenberg—Buy an ABC in Apiculture—Mr. Miller will tell you how to feed bees in winter.

Mr. Wheeler—I have an idea that Dadant's Revised Version of Bee-keeping would do it.

Question—Is it customary to wash new honey cans and pails?

Mr. Bull—In regard to pails—I would say, whether it is customary or not, it is proper. I would not care to eat honey myself without having the pail washed. I wash my pails and rinse them and dry the water out over heat. You have to do it with friction top cans. The 60 lb. cans I would wash the same way, but would not wash them until I got ready to use them.

Mr. Bull—If I use cans the second time I leave the honey in them until I get ready to use them, and then wash them. Drain the water out the best you can. There will be about a teaspoonful left in a 60 lb. can; holding it up cornerways and then straight you will get practically all of it out. If the can is pretty hot with hot water, the heat of the can will draw most of the water out.

Mr. Bull—There is one way to get all the water out; if it stays long enough, right side up in the sun, it will get all the water out.

Mr. Wheeler—I have tried for days to dry cans out that way and failed.

Question—Why do manufacturers make "V" edges on frames?

Mr. Dadant—I suppose this means the "V" edge on the Hoffman frame.

Mr. Van Wingarden—It is very evident that the bee-keeper wants that and that is the reason they make them.

I think if we had no "V" edge on the Hoffman frame there would be less propolis.

Mr. Dadant—I think they are made both ways; at least we make them both ways.

Mr. Bull—All I have to say about the Hoffman frame, I wish that I did not have them. I use a plain frame with a middle spacer. The frames of my supers are nailed up without any spacer on them. You have a frame that is a frame. If you drop that frame you cannot hurt it any. It does not break the frame to drop it. Does it leak a little? Certainly, they are bound to, but the frames will hold.

Mr. Kindig—Do I understand you use the metal space frames?

Mr. Wheeler—That binds the top bar down; you can walk on them if you want to and you cannot break them.

Mr. Dadant—Your frames are not interchangeable, then?

Mr. Bull—No, I don't want them to be. My extracting frames never go into the brood chamber.

Question—What is the best way to melt up old combs?

Mr. Bull—I used the Hatch press; set the combs out in boiling water; wash them out good and use the Hatch press. If you wanted to do it in a wholesale way, you would want something larger.

Mr. France—Just one thing I would like to call your attention to; with old combs or otherwise, do not overheat the wax; if you do you will spoil it.

Mr. Bull—Do not let the water and wax bubble up, because the water bubbling will make little round holes of that wax; there will be just that much waste. Do not allow your wax to boil. Stir it up and, as soon as it gets hot enough, run it through the press.

Mr. Bull—If you use the press you will not lose much wax.

Mr. Dadant—Last fall at this meeting, Mr. Cavanagh and I had quite an argument about the different kinds of presses we used; I used the Hershiser and he the Hatch. I asked him to send me all of his slumgum from his Hatch press. He finally agreed to send it to me.

We have steam heat that we turn into the press, without having to use any fire under it, and it is convenient because you can turn your heat the minute you want to. He sent two barrels of slumgum; from one I secured 25 lbs. of beeswax, and from the other, 33 lbs.

I sent him $4.58 for one batch and $7.50 for the other. That was just the slumgum from the Hatch press.

My contention is this: The Hershiser—not that I am trying to push the Hershiser press—but the Hershiser has the old combs under water; wax is lighter than water. The minute you relase that wax it goes to the top.

With the Hatch press, as I understand it, you melt your combs and pour them in sacks and squeeze it. I do not care how good an operator you are, some of that wax is not going to come out.

Mr. Dadant—With the Hatch press, as I understand it, you do not heat your combs except before you put them in; there is no heat around your press at all; you are bound to have some wax left in that slumgum.

We have an old cider press but instead of the wooden part we have steam coils. That is one thing that the Hershiser does do, it gets clear through the whole thing; every bit of that wax will go out. We have saved slumgum from the Hershiser press and tried to run it through again and never got a bit of wax, and I have not seen this true of slumgum from any other press that runs under water.

It stands to reason that, if it is under water, the minute your wax is released it goes to the top and never gets back into your slumgum. Wax at thirty cents a pound is worth saving.

Mr. Bull—If you run the slumgum once through the Hatch press you are going to get some, but if you run it the second time you will not.

Mr. Dadant—Did you ever try burning the slumgum?

Mr. Bull—Yes; it usually varies; you cannot get it dry enough to burn. The second time you can make day's wages, counting your time at $2.00 a day. You have to operate that press right. I have very little wax left; most all the wax runs immediately out of the press.

Mr. Wheeler—I put my frames in and steam them until they melt down; then put them in the press afterwards. I use the old scheme that Mr. Hutchinson used to use—putting the frames into a basket and letting the combs melt down; take your frames out and shake them off, and let what wax will run through. The slumgum is in the receiver. After you get enough slumgum, put in the press and press it out. I have tried putting into a sack and cutting out the frames and I never made a success of it; it seems to hang to the sack and boards and everything else. I heat the old combs up with steam instead of hot water.

Mr. Bull—There is no doubt there are lots of better ways than I am doing but I handle a few boilers full of wax. The Hatch press costs $6.00.

Mr. Rattig—Do I understand you press your wax under water?

Mr. Dadant—The combs. The press is a square can full of water; when you press down, the wax floats to the top; runs out in the spout.

Mr. France—I have had quite a bit of experience in rendering up old combs over the state in the last twenty years. I have never seen a wax press that will get practically all of the wax as does the Hershiser press. The principle involved in the Hershiser press is excellent. If you take a sponge and put one drop of ink in it and put it in water and rinse it, your water is black; put it in again and you will finally get it all out. The idea is, rinsing and re-rinsing all the time under hot water; but, as Mr. Bull says, the difference in the cost is an item.

I have used more of the Hatch presses, for the reason it is easier for me to take around over the state; but, if I have to take the ordinary conditions as I find them in many places, I find that the slumgum is mixed with wax.

In one place where we were in a hurry, I told the party that there was a lot of wax in the slumgum and that it would pay him to run it over; it would have paid him many times over $2.00 per day in that lot.

We have tried at home to burn the

slumgum when there is not wax enough left in it, to make fuel, but as for getting the largest percentage of wax I have not seen anything that involves the principle of the Hershiser press.

Mr. Wheeler—You think, Mr. France, that is better than steam—the hot water more penetrating than steam? There are presses where steam melts the wax and the wax runs down on a platform and out.

Mr. France—The water in contact with the wax seems to separate better than steam; steam is a more convenient way to work it; but, when you come to the actual percentage of wax you can get out of it, I want lots of water with the wax.

Mr. Simmons—Don't you think the washing of wax with water is an advantage in purifying and cleaning the wax?

Mr. Dadant—I have not had much experience with the Hatch, to state the percentage.

Mr. France—So far as quality is concerned, I do not think there is any difference. You will get it a little cleaner of sediment with the Hatch press than with the others.

Mr. Bull—You have to re-melt it all anyhow the second time.

Mr. France—I find we can have a very nearly perfect wax with one melting if we allow an abundance of hot water for the wax to run into and remain hot for a long time in cooling.

The more water we use in the storage in which it cools finally, the cleaner and better the wax, so that the bottom of the cake will be practically clean, and you can rub off with the hand all dirt or sediment on the under side of the cake.

Second hand tin cans I have found very good to cool wax in.

Mr. Bull—I use 60 lb. cans, with the top out; sometimes you can take a cake out of there in 48 hours and that wax is clean.

Mr. Coppin—Don't you skim it out at the top before it cools off? That is the way I do mine. There is always something that rises to the top that would not look so well, and I skim it off, and then I can scrape the bottom off and one scraping is all that I need.

I do not disturb the wax. I just skim off a little black substance.

Mr. Wheeler—I think this point of the clarifying of wax is something that each ought to study a little more. It has taken me a great many years to find how to get wax. I stumbled onto a thing, and that was: After I get my wax in all sorts of chunks and shapes from my extractors, I put a big boiler of water on my stove and get it nearly to a boil, and put the wax in and let it melt; I take a big sheet of wire cloth and spread it over my tank; I let the dirt settle, and take a dipper and dip from the top down into the screen, and every particle of dirt is kept under the screen. Then I put this wax into a vessel and I have a clear, fine wax. I tried all sorts of schemes up to that time and had trouble. This seems to be very easy. You can heat the wax up in a very short time and dip it out from the top. Have nice, clean, hot water in your pails. You get a nice quality of wax without much labor.

Fr. France—One thing may be misconstrued—you sink the dipper, don't you?

Mr. Wheeler—Sink the screen wire net and all right down. The hot wax will run through there and you get nothing but wax because the wax is on top.

Mr. Bull—I fill five or six gallon can of melted wax and leave it stand there for probably six or eight or ten hours and draw the wax from a hole about four or five inches from the bottom of the can.

Mr. Wheeler—In melting old combs, if you have bee bread and young and unhatched bees, you have old stuff that I can't get out that way.

Mr. Bruner—I would like to ask, how many pounds of wax can be run through a Hatch press per day?

Mr. Wheeler—That would depend; with the combs all cut out, you would have to run two boilers; it takes about 25 minutes to run a No. 9 boilerful through. If the combs are pretty old you cannot use so many because you have to give them more water. It depends altogether on your combs. A boilerful of ordinary old combs takes about 25 minutes.

Mr. Bull—Usually about 60 combs.

Pres. Kannenberg—We will now adjourn until 7:30 this evening.

EVENING SESSION.

Pres. Kannenberg—We will have Mr. Mosier's talk on Sweet Clover.

SWEET CLOVER.

(Prof. J. G. Mosier.)

For this valuable paper we refer you to Mr. Mosier's paper given at the State meeting at Springfield also. (See following his picture.)

Pres. Kannenberg—If there are any questions to ask I suppose the Professor will answer them.

Prof. Mosier—I will try.

Mr. Dadant—You spoke about testing the soil for acidity. A great many of us do not know how to test soil for acidity. How shall we go about it?

Now we have been using blue litmus paper right along for testing. Take a mass of soil, make a ball by squeezing it together; break it apart and put blue litmus paper in, leaving part of it in for 10 minutes, and, if the soil is acid, the blue litmus paper will turn pink.

The test we are recommending is the hydro-chloride acid test, to determine whether there is limestone in the soil.

We need the presence of limestone in the soil, and by using hydro-chloride acid, pouring it on the soil, we can tell if limestone is there. If a bubbling takes place it is an indication that there is limestone; if not, it is an indication that limestone is absent. The soil may be neutral.

If you take a piece of limestone and drop some hydro-chloride acid on it before you go to make the test, you can see how that bubbling would take place. If there are fragments of limestone in the soil that is all that is necessary.

The reason we are using this test is: For a long time after we made applications of blue litmus, we found it would give an acid test and there would still be limestone in the soil, so we have almost entirely quit using that and find the better test is hydro-chloride acid.

On the southern Illinois soils we have a man who is doing limestone work. He is interviewing farmers and they bring him samples of soil to test; once in a while they will test him. They bring samples of soil that they have put limestone on—so now he is testing with hydro-chloride acid. That is the best test for all to use as to the presence of limestone in the soil. Get the commercial hydro-chloride acid. You can get enough for five or ten cents to make all the tests you want to make.

You may have the surface soil acid and the sub-soil containing limestone. If you have conditions favorable enough, the sweet clover, or alfalfa plant will get the roots down into that limestone in the sub-soil and it will stand anything, but, if conditions are not favorable so they will do that, they are apt to die out.

You may go into a field where you will see some plants of alfalfa or sweet clover, and you may find the soil is acid and the roots have cut down to where the limestone is. You will see other plants thrifty and green and they have reached the limestone. It is always best to have soil with some limestone in it.

In southern Illinois we have unusual conditions; the sub-soil is much more acid than the surface soil, and we can put limestone under the surface soil and mix it, but we cannot get it with the sub-soil until it reaches down in there.

If sweet clover grows it will puncture that and limestone will soon get down in that sub-soil.

A member—I understood you to say it was two different installments; do you mean two different times?

Mr. Dadant—In the case of the farmer: If you have a rank growth of sweet clover it might fill up, second year's growth, yet in some fields where it is rather permanent I have seen it growing scattered around; there is some there that will start this year and bloom next year.

Mr. Wheeler—It might be of interest to some of you to know something about the history of the sweet clover plant. I mean the history of its introduction.

Thirty-one years ago next spring I got some sweet clover of Thomas G. Newman. I moved west to northwestern Iowa. I bought a bushel or two of Mr. Newman and paid him a lot of money for it. They were getting out pamphlets then. Mr. Newman was trying to work up an interest in sweet clover, telling how good it was, and trying to get farmers to sow it.

At that time, 31 years ago, I heard a good many of the same things I have heard tonight, and I thought in future years farmers would use it; I

was quite enthusiastic over it, and I sowed some in different places.

After three years I went away from that country; and I never saw the place until this fall, when I made a visit out there.

I sowed my sweet clover in different places, some on high ground and some on low ground. I put prairie blue grass in the sloughs and for some reason or other it caught the first spring. It had a big crop of sweet clover growing up in the prairie grass.

I sowed other seed of sweet clover around where there were weeds along the road, on high ground; that soil out there is full of lime. I thought sure the sweet clover would grow on high ground, and I watched it for two or three years but there was no indication of its growing on high ground or any place except on cultivated ground.

On the prairie where it had been burned off I used a disc pulverizer and tracked it and got a splendid growth. It stood 1½ feet high and prairie grass and sweet clover grew in as thick as it could stand.

This fall I was out there and drove for several miles over the country, looking to see if I could find some of that old sweet clover. I found quite a little of it growing.

I knew the very identical spots where I had sown it. It seemed to grow in the wet, low places rather than in the high.

I thought this might be of interest to you, in that it was so long ago. At that time bee-keepers thought that the farmers would in a few years take it as a crop. Some said then it was good for grass and others for feed; others said it was good for stock; and others said the stock would not eat it—so this thing has been going on for thirty-one years that I know of.

Mr. Mosier—It seems to me that this year the acreage of sweet clover will be limited by the amount of seed there is. I have never had so many inquiries in regard to sweet clover, and inquiries as to where the seed could be obtained.

Men have written to me what amount they were planning to sow.

Mr. Masters of Jacksonville, Illinois, is planning to put in 300 acres this spring.

Mr. Mahany of ————————, Illinois, seeded 80 acres last fall and will put about 150 to 160 acres in again this spring.

All over the state we get inquiries about sweet clover, and statements of the amounts they are planning to sow.

Mr. Wheeler—How much to the acre do you sow?

Mr. Mosier—12 to 15 lbs. to the acre. Of course if we had a method by which the germination could be increased the amount could be lessened a great deal, and 10 or even 8 lbs. per acre would be an abundance.

Mr. Schlader—Has anything been said about the bee-keeper and sweet clover? Is sweet clover any advantage to the bee-keeper? I remember a year or two ago I read an article by Dr. Miller. He was talking about honey and said it had never been his good fortune to see any honey that he knew was sweet clover honey, as he depends altogether on white clover and alsike. I depend on sweet clover. I don't have much honey but what I do have is sweet clover and I found it a splendid honey crop. My crop in 1913 was an average of 150 sections; one or two colonies ran over 200 sections. This year my average was 80 sections to a colony. It was very dry this year in October—and it is a "dry" town anyway. The honey yield was not very much. It is good honey, and if you can get near any sweet clover growing you can be sure of having some honey every year, and I notice that some people that depend on white clover altogether are not certain of a crop—so I think it is up to every bee-keeper to boost sweet clover.

Mr. Bodenschatz—Around my part of the country we have a lot of sweet clover. I live along the drainage canal. We have lots of sweet clover. A good many years the bees would make a living on sweet clover, but this year they did not work it at all.

Last season they worked heavily on it, but this year they have not done anything. There are years now when they will not work on it. What is the cause, I do not know.

Pres. Kannenberg—I suppose they do not have the nectar every year.

Mr. Bruner—The reason is, perhaps, that the sweet clover is not allowed to grow wild and the young plants are choked back by the present year's growth; at any rate there is not so large a crop one year as another; the same as an orchard that is left to bear its full, the next year it will not be so fruitful. I would like to ask, how

many pounds per acre you get in the way of seed?

Mr. Mosier—This is the first year I ever harvested for seed. I was learning this year. I got 150 pounds to the acre this year. That is not a large yield; it is nothing like what we read about.

This year in Will County (I have forgotten the name of the man), a little over 13 bushels per acre was raised. Mr. Comstock got eight bushels on a farm in Iowa. The yield huns on an average, I should say, of from 5 to 7 bushels per acre.

The gentleman from your County who had that large yield sold his sweet clover at $.25 a pound and the profit was $205 an acre for his sweet clover seed, and then he got a crop of hay that he said would make two tons per acre.

In my own case this year I was learning how to handle it and depended on the first crop. I wanted really to see how much growth I could get of sweet clover and I did not know when to cut it, nor what was the best time to cut it, and I had to experiment with it. I found some parts of the field were all right but other parts of the field had gotten too ripe and the seed was practically all gone. That is the advantage of leaving a second crop for seed; it ripens more uniformly than the first crop.

Another disadvantage I experienced this year: When the clover was ready to cut, or would have been in about a week, we had a heavy storm that caused the sweet clover that was higher than my head to lean over, and it was only waist high. A week after that it was white with bloom.

I told my wife I lost more sleep over that sweet clover than anything I had to work with before.

This year, by cutting the first crop, we will get a better seed crop.

If you cut a crop of hay when it gets to be 18 or 20 inches high, that is the second year's growth, it will ripen much more uniformly the second crop.

The man on my farm wanted to see whether the stock would eat sweet clover hay, and he cut some to try it, and the seed on that ripened much more evenly. It was plumper and nicer seed in every way, and I have seen corresponding with men who have been growing sweet clover for some time, and have learned that that is the plan they follow.

With regard to sweet clover roots, the rapidity with which they root in the soil and the amount of root they develop the first season is wonderful.

Last fall I took a spade and dug around about 14 inches square and then got a spade under one side and pried it under, sweet clover and all, and some of the roots were 30 inches long and were almost as large as a lead pencil. That would indicate they went down 1½ foot below that.

Prof. Roth of the University, in growing sweet clover, took a plant 3½ inches high; had three sets of leaves on; he dug down and followed that root two feet, and then gave it up. That shows you the rapidity with which they root and the reason why sweet clover, as well as alfalfa, will stand the drouth.

Mr. Bruner—Will you get as much seed by waiting for the second growth of seed?

Mr. Mosier—You will get more because the first crop will seed irregularly and much of it will fall off.

The second growth matures more regularly and will produce more seed.

Mr. France—Up in Wisconsin they have gone to growing sweet clover for seed; they clip the first in order to get it to produce more seed.

A member—Will yellow grow with white?

Mr. Mosier—I was told that the first to come in there was the white, and that the white sweet clover occupied the roadsides and ditches in that community, and later on the yellow came, which seems to displace the white.

Many of our clovers produce what is commonly called clover sickness in the soil and it will result in stopping the growth. I have no doubt but what this same condition would obtain in sweet clover. If clover sickness is produced by one clover another clover will come in and live there. I think perhaps the reason the yellow displaces the white is because of the clover sickness displacing the white.

Mr. Coppin—I think the cause of the yellow clover crowding the white out would be on account of the yellow being earlier and the seed maturing before the white got along.

Mr. Bruner—I notice where the yellow replaces the white in considerable areas where there was no cutting done

at all, it seemed to be a natural process of some sort.

Mr. France—One other point I would like to bring up in behalf of sweet clover: Up in our state the farmers own the land to the middle of the highway, and it is a strict understanding that you can go into the highway with a manure gatherer, and the farmer will say to you, you can take the sweet clover belonging to your own farm but don't come over into mine because I want it myself.

Mr. Kindig—I trust you will allow me to express my appreciation of this excellent paper.

I was just thinking as Prof. Mosier was reading—I wish that every farmer in Illinois and Indiana who is not already in the alfalfa game might have this paper on the phonograph and have a recital about once a week.

In regard to sweet clover growing on limestone soil, I have noticed in limestone formation on southern Illinois soil that in the hilltops, where the soil has been quite badly drained, those hilltops do not produce sweet clover.

I take it that without any testing of the soil one cannot depend on limestone soil as being a soil which is not acid, but rather these hilltops have become too sour.

In regard to testing for the acidity of the soil with litmus paper, it has been my observation that litmus paper in the hands of some farmers has not been treated properly to make a proper test of the soil.

I have seen a case or two, where, with various things on the fingers of the farmer, a contrary reaction was gotten in the soil test, simply because the litmus paper became contaminated with the fingers of the farmer used in handling it—so from that standpoint it seems to be the hydro-chloride acid is the best and is more reliable.

I do not know whether you Illinois people have a law against clover as a weed upon the public highway.

There is going to be some action before the legislature of Indiana this coming winter to take sweet clover from the list of condemned plants, and I certainly hope there will be enough pressure brought to bear on the legislatures that sweet clover may be put on the list of desirable plants, the yellow sweet clover as well as the white.

Lots of people in the vicinity of Indianapolis got their honey crop from sweet clover.

Sweet clover gives quites a continuous honey flow for a long length of time, which, I think every bee-keeper will agree with me, is quite a valuable asset in most any locality.

Mr. Schlader—If any one will look over any bee-keepers' journal they will find that bee-keepers have been handling sweet clover for quite a while.

Mr. Hawkins—I recently read of two farmers in Wisconsin that attempted to get a growth of sweet clover. They both called on their County Agricultural expert for information as to how to go about it.

Both planted it on the same day, in the same manner, and carried out the whole work exactly alike. The one farmer on the one side of the road got a good stand; the farmer on the other side got such a poor stand he was thoroughly disgusted with it.

In trying to trace out the cause, the County expert brought out the fact that Professor Mosier has emphasized tonight as to the value of limestone. This county expert figured that during the season of planting the prevailing wind in that particular place had been from such a direction as to blow all the dust and stone from the highway onto one man's field, while the other man got practically none, and, because neither field was treated with limestone, the man that got the application in this form got a fairly good stand a few rods from the road; that sounds like a fairy story but it is a fact.

In speaking about sweet clover being a honey plant, I think it depends on the amount of moisture that is available. In my home town there is a gravel pit of 140 acres, dug out by steam shovels. It was left for ten or fifteen years, and we planted sweet clover in there; the place was never dry, and there was a yield every year without fail, no matter how dry a year it was—until this year; but it was not a failure this year on account of drouth, nor foul brood, either, but because they went to work in that gravel pit with a dredge and they dug a big ditch and drained the water off to level, from twelve to fourteen feet of what it was before.

The plants did not have a good supply of water and did not live well.

I should like to see Prof. Mosier given a vote of thanks, and, if it is

proper, I should like to make a motion, as a member of this Association, that we give him our sincere thanks for coming here and giving us this talk tonight.

Pres. Kannenberg—You have all heard the motion, is there a second?

Motion seconded and carried unanimously.

Pres. Kannenberg—I would like to hear something more about sweet clover. We have an ordinance that it has to be mowed off when it is less than eight inches. (In Oak Park, Ill.)

Mr. Kindig—I do not want to infringe upon Mr. Mosier's subject, but I feel that the subject of inoculation must be emphasized, in some localities. I know that where I live inoculation is the thing.

It is absolutely necessary in order to be really successful with sweet clover.

The Professor spoke about the method of inoculation and drying of the soil, and it seems to me this remark would be in order: That in the drying of the soil it must not be laid out in the glare of the hot sun or put in the oven and baked dry. Those are two things that will kill inoculation. Some people have done that trick—that is the reason I mentioned it here.

Mr. Coppin—One thing I would suggest: Sow the white sweet clover and the yellow sweet clover along the roadsides where they are death on mowing it down; spread the two kinds in the same place. The yellow will go to bloom a few weeks earlier than the white, so that, if they get after the yellow to cut it down and destroy it, they won't damage the white. The white will soon commence to bloom after they have cut down the yellow. It will keep them busier to get rid of the two kinds than it will the one. I think that would be a good idea—sow two kinds in the same place.

Mr. Hawkins—I think you are going a little hard on the fellow who cuts sweet clover.

I have a lot of railroad highways up my way; the section man commences to cut down the sweet clover when it is a little past full bloom. All the sweet clover is cut off after the first yield; after the first rainfall the branches will come up from those stumps and will be loaded with white blossoms, and I believe the second blossoms yield almost two or three times the honey that the first blossoms do; at least that has been my experience.

Mr. Coppin—I notice they generally get after the sweet clover when it is in full bloom. I have seen roadways where I just had room to drive through, with the sweet clover in full bloom; and if they cut that down and other seed has been sown that will come up later, it will keep them busy.

Mr. Bodenschatz—I believe in sowing it mostly in the fall, and it will grow better during the spring. I know that we got the best stand that way. One thing I do not like about sweet clover: The cattle eat it too close down for me in our country, and keep it down pretty low. In one way it keeps a continuous blossom; it is kept down so low by cutting that the cattle eat seed and all.

Mr. France—It seems to me there is one thing lacking in Illinois. Illinois wants to do as did Wisconsin: Take sweet clover off the obnoxious list.

Pres. Kannenberg—That is in Oak Park that I had reference to; that only belongs to the town of Oak Park.

Mr. Mosier—Sweet clover is not mentioned specifically in Illinois, I believe. Of course there is a law against obnoxious weeds, but I do not think that sweet clover is specifically mentioned. It is in Indiana.

A member—The seeds that do not germinate the first year, will they germinate the second?

Mr. Mosier—Part of them will germinate the second year.

Mr. Wheeler—I have tried that on plats of ground and it won't show up for two or three years.

We have a patch of ground I have worked on for eight or ten years. We sowed sweet clover so thick on it, and I am certain that seed eight years old sprouted and grew; it must have kept its vitality for that long time.

Mr. Hawkins—I think Mr. France is very correct in his idea that we should get the legislature to take sweet clover off the list of obnoxious weeds. It seems to me a campaign of education would be as good a thing as bee keepers could do much in the line of boosting sweet clover, to show its real value for other purposes besides honey. Instead of throwing rocks and placing barb wire, and one thing and another, in the highway, as some one suggested,

I think it would be well to have an educational campaign.

That makes me think of a story:

At a country school house where they were having a Wet and Dry campaign, they had a "Dry" speaker who was doing his best to persuade the audience that the one thing the country needed was to do away with the manufacture and sale of intoxicating liquor.

One farmer who seemed to think his time had come got up and asked the speaker what he thought all the farmers in the country would do with their corn if they stopped the manufacture of whiskey, and before the speaker could reply another farmer said: "My friend, we will raise more hogs and less hell."

Mr. Mosier—The bee-keepers are pushing sweet clover, and I am satisfied that the Soils Department of the University is going to push sweet clover because of its value as a soil improver.

It seems to me that if the bee-keepers and the Soils Department of the University of Illinois get behind sweet clover we ought to hear from it pretty soon.

I look for a big increase in the growing of sweet clover in a few years because we are demonstrating right along its value.

And another thing: We are just getting ready now to publish a bulletin on the subject of sweet clover as a soil improver, and those bulletins go to something like 60,000 farmers in the state and in other states; they will reach a lot of people, and I have no doubt we will do a good deal towards increasing the growing of sweet clover.

Mr. Wheeler—I was glad when I read that the University was going to take up sweet clover because I have seen the bee-keepers trying to work up the use of sweet clover among farmers for years and it didn't seem to work.

As soon as the bee-keepers begin to talk on that which seems to be in their own interest, men naturally seem to work against it.

I remember that Mr. Baldridge was talking sweet clover thirty-five years ago; and Mr. Thomas G. Newman also talked about the use of sweet clover over 30 years ago, but they were talking of it as bee-keepers.

It is a mighty good thing to have the State University Agricultural Department take it up. The bee-keepers have had rather a poor showing; of course it would not do any harm to work together.

I would like to ask the Professor what bearing it is going to have on bee-keeping if the Dairy Companies around Chicago should make use of sweet clover. How will they take it up, and will they let it bloom enough so that we will get something out of it?

Mr. Mosier—It seems to me it would be almost impossible to grow sweet clover without permitting it to bloom. It might not be as valuable in dairy use as on grain farms, where they desire a crop of seed. In dairying they would want some hay and they might for that reason keep it from blooming more, but then there would be an immense amount more of sweet clover blooming in the dairy section than there is at the present time. Until the seed would get down to the very lowest price, the seed crop will be a paying proposition and they will let it go to seed, and that will of course necessitate the blooming of the plant.

Mr. Dadant—Have you any idea, or can you venture to guess as to how long it would take before the seed would get down to where the red clover is,—a reasonable price?

Mr. Mosier—I should say five years.

Mr. Dadant—I heard Mr. Cloverdale and Mr. Frank Pellett of Iowa talking the matter over, and Mr. Cloverdale made a guess of seven years. He thought it would take from five to seven years, and Mr. Pellett thought it would take longer before we got enough seed in the country, that the demand would be as great as it is now; so we have from five to seven years ahead of us where they are going to grow it for seed, and bee-keepers can take advantage of it.

Mr. Wheeler—Do you cut it with a regular ordinary harvester binder?

Mr. Mosier—Yes.

Mr. Wheeler—That would be another argument in favor of cutting it for hay for the first crop; to have it of even growth, it would be more easily cut, not so scraggy.

Mr. Mosier—To cut that sweet clover this year after it had blown down and the plants were six and seven feet high was a pretty difficult undertaking. I cut it as high as I could, and then the plants were so long they would stick out from the binder. It would be an

advantage to cut a crop of hay and let it lie on the ground.

I know a man who had sweet clover to thrash this year and found it impossible to find any one to do the work for him. They simply had to pound it out with a stick (a flail). That of course may be the case in a few localities, but as a general rule I do not believe it would be in all localities.

A member—Mr. Cloverdale said that the Birdsall people were making a machine so that it would handle sweet clover, and if we begin raising sweet clover a machine will be made that will be adapted to thrashing—and that is some factor.

Mr. Wheeler—Another point touched on: It has to be cut before it blossoms if you want to get a second growth; it wants to be cut before there is any sign of bloom.

Mr. Dadant—Can you give us an idea of curing the hay? How it should be handled—the same as timothy or alfalfa?

Mr. Mosier—The same as alfalfa. It is harder to cure than alfalfa.

Mr. Mosier—That which we cut; we found that by letting it cure some and raking it up—stirring it with a rake and bunching it—you could cure it fairly well.

This season, of course, was a favorable season. In a wet season there is no doubt it would be harder to cure than alfalfa. The practice in some cases is to cut it and let it get partly dry, and then bunch it and leave it there; and, in spite of the fact of rain or something of that kind, it is apt to come out in very good shape.

It will be more difficult to handle than alfalfa because the stems are larger and coarser. That is one advantage of having sweet clover quite thick, and even then you cannot reduce the stems so that they will be the same size as alfalfa.

Mr. Hawkins—I asked Mr. G———, of Rochelle, if he had found it necessary to have bees on his farm to fertilize the blossom. He said he never had. So far in his experience of sweet clover he had never had a failure, but he had no doubt there were plenty of bees around Rochelle and they no doubt fertilized the blossoms all that was necessary.

Mr. Dadant—That statement that Mr. Mosier makes, that sweet clover can get the rain on it and not hurt it, is a big thing in favor of sweet clover against red clover. I have heard Mr. Cloverdale say that sweet clover could get very wet and it did not seem to hurt it very much.

Red clover, if it gets wet once, is almost fit for nothing.

Pres. Kannenberg—I call the meeting adjourned for this evening, to meet tomorrow morning at 10 o'clock.

FRIDAY MORNING SESSION.

Pres. Kannenberg—The first thing this morning will be the Committee on Resolutions.

Committee makes report as follows:

Resolution 1.

Whereas, God in His infinite wisdom has seen fit to remove from our midst our friend and co-worker, Fred B. Cavanagh, we hereby extend to Mrs. Cavanagh our heartfelt sympathy and condolence.

The Secretary of this Association is instructed to forward to Mrs. Cavanagh a copy of this resolution.

Resolution 2.

The Chicago-Northwestern Bee-Keepers' Association hereby extends its thanks to all who have assisted in making this meeting a success.

Resolution 3.

Be it Resolved, That the Chicago-Northwestern Bee-Keepers' Association tender a vote of thanks for the use of the hall so kindly donated by the management of the Great Northern Hotel.

Pres. Kannenberg—We will now have a report of the Auditing Committee.

We, the Auditing Committee, have gone over the Secretary's books and the Treasurer's books and find them correct.

Mr. Dadant—We have $1.86 and still have some money coming from the State Association, $15.00 or $16.00.

Pres. Kannenberg—What do you wish to do with this report?

A member—I move its adoption.

Pres. Kannenberg—The report stands adopted as read.

Pres. Kannenberg—We have a letter from Mr. F. C. Pellett on the High Price of Sugar and the Honey Market.

December 12, 1914.

Mr. Louis Dadant, Hamilton, Ill.

Dear Mr. Dadant:

I am just back at my desk after about ten days' absence. You can imagine that the work is piled up pretty high and that I must push things to get it all cleaned up before I have to go out again. Really I have no inspiration to write a paper for you on the subject you suggested. Bee men should take every opportunity to place their product before the public and the high price of sugar is one such opportunity. You know I am somewhat of an enthusiast about honey and bees. I don't believe that it would be possible to produce more honey than the public can be educated to buy if the bee-keepers are awake. With half a cent per pound of our annual production used in intelligent publicity it would be possible to double the demand for honey and then what would we do? The scarcity of honey to supply the market demand would rapidly increase the price. I would very much like to be with you at the convention and meet again some of my friends who will be there and make new acquaintances. However, I have been on the wing much of the time this winter, already, and must keep on going to fill my engagements. I am away so much that it is getting to be a treat to spend a few days by my own fireside.

With best wishes for a successful meeting, I am,

Very truly yours,
FRANK C. PELLETT.

Mr. Dadant—As you probably know, Mr. Pellett is State Inspector for Iowa and he is a very busy man, and for that reason not able to be here.

Pres. Kannenberg—The High Price of Sugar and The Honey Market—Is there anything to be said on that?

Mr. Roehrs—I think if our public was educated on the value of honey there would not be this great difference in the price of sugar and honey. We all know the value of honey. There would not be this great difference because honey cannot be compared with sugar. Honey is a predigested food but our public as a rule are not educated. They do not know it and therefore we find that there is an enormous amount of sugar consumed in the United States and a small amount of honey in comparison. There is no one else to be blamed for this than the bee-keepers. We ought to educate the people as to the true value of honey, and as long as we do not do that our prices will always be as low as they are.

Mr. Dadant—I think it was Mr. Woodman last night who talked to me about the prediction that Mr. DeMuth had made about the low price of amber honey and what it is going to do in the future; I wish Mr. Woodman would tell this.

Mr. Woodman—Mr. DeMuth made the statement, relative to the low prices at the present time of honey, and he tought it would result to the great benefit of bee-keepers in the near future, for the simple reason that more uses would be found for honey and people would get to use larger quantities of it, so that when the market did get squared around again the result would be **better prices.**

Mr. Dadant—I do not know how many bee-keepers know of, or have watched the market on amber honey, especially amber honey from Colorado. Honey ordinarily used for baking has been bringing good prices, five and six cents a pound; that is good price for that class of honey.

At present I think Mr. Woodman said that he had been offered amber honey for 3 and 4 cents a pound; so you see, for the baker who uses honey in preference to sugar, it will answer their purpose.

Mr. Wheeler—I want to ask Mr. Dadant if he thinks that the bakeries are using as much honey as they do other things.

Mr. Dadant—I don't know about it because we do not handle that class of honey.

Mr. Wheeler—I was told by the Manager of the National Biscuit Company that they were not using nearly as much honey; that they had found a substitute for it.

Now, I do not know whether any of you people heard of it or not. I could not find out what the substitute was. He did not tell me, and that is their own affair. He said to show you the difference in the amount of honey we are using this year compared with last. In round numbers I remember he said they used 125 carloads last year and about 15 this year. That shows you the proportion, about, as to what they were using last year and the amount used this year in comparison.

Now the question is, in my mind: is that not one of the reasons why California dark honey is selling so much lower?

Mr. Dadant—I would like to hear from Mr. Burnett on that subject.

Mr. Burnett—Mr. President, I do not know that I can help you very much about it.

As to the relative difference in the price between sugar and honey, I might say that one really does not replace the other. Take for instance the case cited by Mr. Wheeler. The reason that they are not using so much honey in the last year as they did previously is because perhaps the style of goods is changed. Honey is used for goods that will keep moist for a length of time, as in jumbles; and so-called honey goods generally has required honey that would carry through the oven and keep its flavor. They have not liked the low grades of honey; in fact, the better bakeries do not use it.

The alfalfa honey from California differs from the alfalfa honey from Idaho and Utah very materially. I mean the lower part of California; that honey is not suitable for table purposes yet it is produced from alfalfa, they tell me, almost exclusively. The alfalfa of Utah and Idaho and those countries are entirely different honey.

The bakeries do not care for honey so much because it has not the carrying properties that will come out in the goods through the oven.

Perhaps the substitute referred to is a confection they are using instead of honey goods. People seem to have tired of those honey goods; that is, the general buying public, and prefer this preparation called confection.

As to the relative price, again, when I said that one will not replace the other to any great extent, I do not say but that it will to a degree, but not to a degree that is of commercial interest.

Therefore, by Education—if you can persuade people that honey is much more conducive to their health than sugar—you will increase the sale of honey.

I think that is perhaps the chief measure that can be effectively used to interest people in honey. Have them understand that these properties are conducive to health whereas the average sugar is not so.

The fermentation that comes from sugar is avoided by the use of honey.

I guess that is about all that I can say on the subject.

Mr. Woodman—I think what Mr. Wheeler had reference to: I was informed that a firm in Philadelphia is engaged in the manufacture of some substitute for honey. I believe they call it some kind of sugar, used for baking purposes. I know that the bakers in our city have used that as a substitute for honey; it would seem to me that the present low prices of baking honey ought to put them out of business at least for a short time.

Mr. Miller—What the gentleman said last seems to me to be true because this sugar is made of ordinary sugar by the addition of acid and raising of the temperature; the cost of skill and labor to do that amounts to something; so if sugar gets up to eight cents a pound and they have to use additional skill and labor to form this confection used by the bakers, we ought to be able to charge more for honey.

Sugar is higher than usual this year and the honey crop is only two-thirds what it is ordinarily, or two-thirds of what it was last year, and we have practically the same prices. Why is it? Is it caused by the hard times, or what?

Mr. Wheeler—The prices are lower on the general market, are they not, Mr. Burnett?

Mr. Burnett—The prices are lower; extracted honey is lower.

Mr. Miller spoke of the cost of the changing of the nature of sugar. Do you now what it costs to do that?

Mr. Miller—I have not figured out the exact cost; I have made it in a small way, but I do not know what it will cost on a large scale.

Mr. Burnett—I understand the cost is infinitesimal; it is very little; it would not make much difference in a pound of sugar.

Mr. Dadant—I might say I have occasion to know that one reason why baking honey has gone so low is because so much honey has come in from Cuba and the West Indies, which formerly went to Germany and European countries.

I heard of some 400 barrels that had come to New York and they were holding it in bond until it could be sold; of course that honey is very cheap honey and would be bound to

diminish the demand in the east and make the honey stay in California where it is and put the price down.

Mr. Hawkins—Has the tariff rate changed? That might induce Cuban and South American honey to come in here.

Mr. Dadant—There is no tariff on it; there is no change in the tariff rate.

Mr. Hawkins—The gentleman here on my left says that the tariff has been reduced to ten cents a gallon.

Mr. Bruner—I oold my honey last year in New Orleans at 6½ cents a pound; that is the early dark honey, to bakers; they offered me 5 cents a pound this year for the reason that the tariff had been reduced.

Just before I left home I had an inquiry for dark honey. I asked 6 cents a pound in Milwaukee, after paying the freight from New Orleans; they wanted a lower price; I did not give it to them. I think they will take the honey at 6 cents a pound. There is a reduction in the tariff rate in the cost of honey at least 10 cents a gallon.

Pres. Kannenberg—We have Mr. France with us and he will give us a talk on Foul Brood.

Mr. France—It seems to me like an old story to tell over again. This subject has been threshed over and over and over again.

The subject of Foul Brood we all know is a serious one.

European Foul Brood is a puzzling proposition and if any one can tell me the real cause for this European Foul Brood and a positive remedy for it I would be glad indeed for the occasion.

The treatment we give which seems to effect a remedy in one case does not apply in another, but there are some things that there is no question about.

For instance, one of the things that has held me back from eradicating the disease in our state (Wisconsin) has been the indifferent small bee-keeper who had the disease and would promise to clean up and would not. I could not afford to stay there and see that it was done.

On my return I would find that everything was just as I left it; and during my absence, while I had been away, the neighbor bees had contracted the disease, until there had been a considerable spreading of the disease.

So I have adopted for this year just closing a system, wherever we found the disease, of leaving as it were a binding obligation on the part of that bee-keeper that he would follow instructions in endeavoring to get rid of it; leaving him instructions how to treat it; and leaving him a report blank to be filled out telling the definite day and hour in which he must return the duplicate slip, that we might keep tab on him, and it has worked remarkably well; so much so that I look forward to the coming season and, unless it is imported, I expect Wisconsin will have no foul brood at the end of 1915.

But with the European Foul Brood—which will break out without apparent cause: After taking an apiary that has been infected with it and cleaning it up, re-queening; doubling up some of the weaker colonies, leaving some of the hives with some combs—it seems to get rid of it. We can't say that for American. If honey is left in an American diseased colony it is dangerous wherever it goes.

I tried when our legislature renewed our law by which I had the power of Deputy, to include in there the sale of second hand honey cans; I knew it would hit some, but really they have been an annoyance to me all over our state.

Bee-keepers would pick them up because they were seemingly cheap, and bring them home to their yards, and invariably they would have a little honey in, and they would throw them out and the bees come in contact with the cans, thrown promiscuously anywhere and everywhere.

I believe there should be something done by which when a can has been once used it would be out of service to be used again.

In one way we are pretty fortunate, in that the Can Companies are making so thin a tin can that it is pretty nearly useless to undertake to use over a second time; especially those that are shipped from the western states; they are a doubtful proposition; many times the outside looks good, but I would not take them as a gift.

I have been offered some for simply the taking but I would not have them. I would not dare take them.

One of my Wisconsin bee-keepers took occasion to buy some of them and if he had paid a Canning Company 15 cents above the retail price he would have been ahead. When he put honey in those cans, many were worn

and leaked and the leakage would more than have paid for the additional expense of new cans; and he also contracted the disease before he got through with it.

Is it necessary to describe American and European Foul Brood?

Our Bee Journals and our literature have given us so much on this subject it does seem as though we ought to, every one, know.

American Foul Brood with its brown decayed matter at that one stage where it is quite offensive for years was known as foul brood; the other was known as black brood.

I know of no remedy by which we can save infected combs in hives where that condition exists. The only thing to do is to render them into wax and entirely renovate or clean up the hive. Any method, which has not for its object the entire removal of all infectious material beyond the reach of both bees and brood, will prove detrimental and encourage the recurrence of the disease.

With European Foul Brood, which seems to be our black brood as it was formerly known:—In advanced stages, it becomes hardened, nearly black in color, and in time dries down to be as thin as the side walls of the cell. With strong colonies and a young ambitious queen replaced from the others they will clean house and that seems to be an end of it.

I had one party who said to me: I had two colonies that were not very strong. I thought to take away that queen would deplete them, so I put the entire swarm on full sheets of foundation; and here is the hatching brood in those new clean combs as bad as before. I said, "You have not removed the cause; the queen was at fault and you kept her with the bees. Take away that queen and give them good Italian blood without any further renovation and see the result; they will clean house."

There is a difference in resistance in different strains of bees; some seem to resist and not take this European foul brood while others will take it very quickly. The ordinary black bee is more susceptible to it.

The state of New York was almost wiped out of bee-keeping at one time with this black brood. Bee-keepers who were not troubled began to raise queens and give them to the neighbors so as to clean up the neighborhood, and that has been the salvation of the state of New York.

A point came up yesterday about shipping the disease.

I hope the time will come when we will have uniformity of state laws, by which the shipping of queens or nuclei has to be followed with a certificate of health, the same as in our farm stock. The cages also ought to be supplied with food that we know is free from any germs of disease.

I had a case in Wisconsin, where every other hive in one row and all new hives that season had American foul brood.

In hunting up the cause I said it cannot break out so uniformly; the bee-keeper is at fault. I found the queen cages and those identical hives that were diseased was where queens had been introduced.

I was in Texas in a beeyard later where those queen cages had come from and found American foul brood galore; so we have to be on our guard, and—although Wisconsin is too far north for successful queen breeding—queen breeders have to have their queens inspected twice a year and a certificate of health goes with every cage from the yard.

Two weeks ago two empty stock cars were shipped from your city from near the stock yards up to one of my near neighboring cities; were loaded with high bred animals, valuation over $200 per head. They were inspected and furnished with a certificate of health.

They started for the Pacific coast. Before they had gone anywhere near their destination they were quarantined and two carloads were ordered slaughtered.

The inspector was called upon, as it was endangering, and did contaminate not only cattle in the vicinity but hogs contracted the disease in the stock yards where these cars were unloaded.

Back tracing has shown that those two cars had come from Chicago where the foot and mouth disease had been.

The same could be done with queen breeders who buy queen cages with food in it infected.

The party from Texas bought cages already supplied with food. I traced back the record of that until I found out where it came from.

With the laws you have in Illinois today and the field of inspection, I feel that the one great need you have is for more education upon the part of the bee-keeper to know the disease and to co-operate with your Inspectors.

I question if there is any necessity for its remaining long.

I do know, however, that, Chicago being one of the great central parts for unloading, it will be always a great means of bringing honey from all sources here to the city, and again as a distributing point.

Dealers might get goods from an infected apiary and not know it, and sell it and not know it.

So it is risky to buy honey for feeding purposes, to feed your bees, unless you know where it comes from.

I would like to have you ask questions on this subject and in that way we can know what is especially wanted.

Mr. Simmons—I understand one of the prolific sources of foul brood in this vicinity is from our dumps, where honey cans and other rubbish is thrown out in the dumps, and I understand that bees many times get foul brood in that way.

I have nothing to do with foul brood in either variety, but I understand that bee-keepers think they get it in that way, from old cans thrown out on the dump.

Mr. Haan—I would like to ask Mr. France if there is any way of telling in the combs whether there has been any foul brood in them, after they have been cleaned up by the bees. I bought some bees some time ago and supposed them to be free from foul brood, and yet I noticed some combs had every once in a while a few cells that would look considerably whiter than the others; mostly looked brownish but some cells were dotted here and there, and of course I wrote to the Bee Journal in regard to them, wondering if that particular comb contained foul brood.

They wrote me back and told me they did not think I need fear trouble from those combs. I let it go at that.

The summer following (I bought these bees in the fall) foul brood broke out in three or four of those colonies of bees that I bought.

I would like to know if any of the bee-keepers have ever noticed any difference in the combs. I supposed that after the combs had been used for several times in brood rearing it would not be noticed but I do believe the first brood that is reared in them would show on the combs.

Mr. France—I wish we would put that adjective before foul brood every time, American or European. They are as different as the difference between black and white.

As for the combs showing—In a new built comb, it would be easily recognized. In American foul brood, it dries down on the lower side wall of the cell, midway from the bottom to the front end of the cell, seldom on the bottom of the cell; in time it dries down to be as thin as the side walls of the cell (a dark brownish thin skin like). The scales will be easily seen. The same would be true if that comb were 20 years old; it would be there, and would forever stay there so long as the comb existed, and the bees will put honey in that cell after it is dried down and the honey will soften and become inoculated, and when that honey is fed to other bees you will have a spread of the disease.

If upon the lower side wall of the comb you see that dark brown matter dried down, don't use it, whether you know it to be infected or not.

One difference that many might mistake: The American foul brood dries down well towards the front end of the cell on the lower side wall. According to its stage of development there will be either the shapeless mass of dark brown matter, on the lower side of the cell, often with a wrinkled skin covering, as if a fine thread had been inserted in the skin lengthwise and drawn enough to form rib-like streaks on either side. Later on it becomes hardened, nearly black in color.

There is something that looks like it, which you must not mistake. In case the bees go into winter quarters with honey dew, there would be more or less diarrhoea that would soil the combs; they have a somewhat similar appearance but are more or less surface soiled, and will also be spotted or have a streaked appearance by the dark brown sticky excrements from the adult bees.

But invariably American foul brood is found on the lower side wall of the cell. The dead larval bee is of a light color; it is termed ropy, so that, if you insert a toothpick and slowly withdraw

it, the dead larvae will draw out much like spittle or glue. There is then more or less odor peculiar in the disease, like a stale gluepot.

Sometimes only upon opening the hive of a badly infected colony will it emit much odor; and in other cases you can notice it several feet away.

I do not think the bees can ever clean out a comb of American foul brood after it is once dried down. There is only one thing to do, and that is to burn it up, or, if many of them, render them into wax; but do not ever render diseased combs with the solar extractor because trouble will exist again if you do.

Mr. Ahlers—I know what this gentleman had; I thought I had a case of foul brood in the south; I found afterwards they were new combs and some of the cells contained pollen and all the balance of the comb was full of brood, and after the brood hatched these combs were placed in the upper story and the bees cleaned out the pollen and all those cells that had pollen in were white, and the others that had brood in were dark; and that is exactly what this gentleman had; he had pollen in some cells and afterwards the bees cleaned it out, and that would give him spotted looking combs.

Mr. Haan—I do not think there had been any pollen in those combs because I saved a piece of one of them; it was right in the middle of the comb and lower half; it was just where all the foul brood had been. At first it appears only in a cell here and there; I got it out with a knife and burned it up. I was only experimenting but I thought that was all there was to it; but I found afterwards it was not.

I had to take these combs out and put them in from another diseased colony, had the brood in there hatched out, and then removed the bees after the bees had hatched, and in this way I have a piece of the comb to show any time in the future to anyone who cares to see it; I think it was foul brood in the combs.

Mr. Kildow—It is very evident to me, and I think to Mr. France, that those cells that showed light were not foul brood scale, because where American foul brood scale sinks down it leaves a brown mass that you can see. As to those light cells producing American foul brood, I doubt it.

Mr. Kildow—I wish the bee-keepers in this room would take what neighbor France has said to heart and keep it there and remember it, and not be like some bee-keeper in the state who wrote to Dr. Miller. He told the Doctor he had read all his writings ever since he commenced to write on foul brood—and asks—"Which is the shortest way to cure foul brood?"

He had read all about it, and then turned around and asked him that foolish question.

Remember what Mr. France has told you. He has told you the truth, right, straight truth, better than I could tell it.

Mr. Haan—I am the gentleman myself that wrote that article to Dr. Miller; it is on me. I am not ashamed to admit it because last summer was the first time I ever fell into the foul brood disease, and, while I had read about it considerably, the reading did not take hold on me like it should. I did not know how soon I would get into it so strong. That has been some time ago, the early part of last summer, when I first noticed the disease. I did not know but that there might have been some short cut, some short way of getting around the McEvoy treatment. Of course I got no reply from Dr. Miller; I do not blame him either, considering there are so many people in business and asking foolish questions.

I noticed in Gleanings, afterwards, my letter, and a reply to it, and I felt a great deal better about it.

Mr. France—I would like to ask if there is any foul brood that you know of within ten miles of your locality.

Mr. Haan—I understand there is considerable around where I am. There was a Bee Inspector from this state who was up there. I live near Des Plaines; and there are quite a few people there who have bees in a small way and they also have plenty of foul brood, I understand.

Mr. France—American?

Mr. Haan—I could not say. I cannot distinguish one from the other myself yet. I may have the one disease; I may have the other or both. I did cut out a piece of comb and send it to Dr. Phillips and he wrote back and said I had American foul brood. I got it nearly all cleaned up and I expect to clean up some more next spring.

Mr. Ahlers—I believe the gentleman

only had pickled brood. I once made 200 pounds of wax in Louisiana and I know now I only had pickled brood. I found the same thing at home afterwards, and Mr. France told me it was only pickled brood. I made 200 pounds of beeswax out of it. I supposed European foul brood and pickled foul brood looked alike; I never saw European foul brood.

Mr. Kildow—Maybe I had better describe European foul brood.

European foul brood seems to attack the larvae almost as soon as it is hatched from the egg. The first appearance is a little light yellow substance; that substance keeps getting a little darker all the time until the larvae dies; the larvae does not die at first when infected.

As the grub grows it keeps turning a little more of a dark yellow and stays in its own skin.

By taking a tooth pick you can lift the whole mass out of the cell. It has that yellow appearance all the way through; the American is more brown and looks more like a mass of soft soap. European stays in its own skin.

In that way I think you can tell the difference between the two without much effort.

European is very seldom capped over, while American in a big majority of cases is capped over—but European is always in its own skin, so that you can take it out, and American foul brood is stringy.

Mr. Coppin—You might describe the pickled brood, too.

Mr. Kildow—Pickled brood—that seems to die about the sixth day, along about that time, when the larvae is stretched out full length in the cell, and it will turn black. The larval bees show light brown spots; and the cappings later have small holes in; the cappings are not shrunken, or dark colored, as in foul brood. The dead bee will be first swollen, with a black head dried to a hard bunch, and often turned up; pickled brood has very little or no smell and does not at any time stick to the walls of the cell; it is never ropy or sticky and is easily pulled out of the cell. The bees will take care of themselves if you properly attend the colony.

Pres. Kannenberg—Now we have a paper from the National Secretary, which may be read—

I am constantly receiving letters asking about the National Bee-Keepers' Association, and the benefit it is to its members. I can not give the time to write a personal letter to each of these inquiries, much as I would like to do so, but I will try and touch in a general way a few of the very many reasons why every producing bee-keeper should join and retain his membership.

The National is made up of the various state and local affiliated bodies. The membership fee to both is $1.50, of which 50c goes to your local Association, and $1.00 goes to the National, and pays for a year's subscription to the Bee-Keepers' Review, in addition to the other benefits that membership will give you.

The Review is controlled by the Association, and is devoted to the interest of the bee-keepers themselves.

Every producer needs it to keep posted on what is doing in the honey business. We help our members buy their supplies and sell their honey, as you can see by the free list printed in each issue of those who have honey for sale. This list has sold many car loads of honey for our members, and helped those who wished to buy to find what they were looking for.

We feel sure that we can assist our members more and more as we get a more and more complete enrollment.

The educational and social features are not the least of the benefits received. If any class of people in the world enjoy meeting one another and "swapping yarns," more than do bee-keepers, I have yet to find them. The local and state meetings give opportunity for this social function, and the National body has to do with the wider business of a general nature.

The general prevalence of foul brood is weeding out the "let-alone" bee-keepers, and the business is getting more and more into the hands of specialists, and the economical production and marketing of honey is of more and more importance. In all lines of production those interested are using Association methods with great success, especially in "boosting" their products. The bee-keepers have been slow to realize their possibilities in this line, and, as a consequence, both the price and consumption of honey have declined when compared with similar products. Associated effort will remedy this.

Get your neighbors to join the Na-

tion. We need all your support at this time. There is much to gain and nothing to lose by being a National member.

We will expect to receive your dues in the near future, making you a member.

You can send them direct to me, or to the Review, Northstar, Mich.

I remain, yours,

GEO. W. WILLIAMS,
Secretary-Treasurer,
National Bee-Keepers' Association,
Redkey, Ind.

Mr. Dadant—Before we discuss that, you all remember that last year brother Cavanagh was appointed to represent us at St. Louis and just about a week before the meeting took place I got news of brother Cavanagh's death. I did not know what to do; we would not have a representative at the National Association, and we were anxious to have a representative at the St. Louis meeting, so I took the matter up with President Kannenberg and I found out that Mr. Baxter, President of the Illinois State Association, was to go to St. Louis on his own initiative, and that it would not cost us to have him represent us, so I wired Mr. Kannenberg if we should not appoint Mr. Baxter and he wired back telling me to appoint him, so I wired to St. Louis, telling him as nearly as I could.

It was rather an unsatisfactory arrangement but we did the best we could. Mr. Baxter promised to be here but I see he is not. We do not know very much about what transpired unless Mr. Kildow or Mr. Coppin, who were at the State Convention, can tell us what was done at the St. Louis meeting, or somebody else who happened to be there.

Pres. Kannenberg—Is there any one present who was at the St. Louis meeting? or we will call upon Mr. Kildow—

Mr. Kildow—I do not know that I can give you a report. I do not remember exactly what Mr. Baxter gave, only in a kind of off-hand way, and not much of that.

It appears there was a good deal of rag-chewing and there was a good deal at our State Convention. We could not get much satisfaction out of what they did down there. I am not able to make any report on that.

Mr. Coppin—I am about in the same fix. I do not know. I thought it was Mr. Moore who was at St. Louis.

Mr. W. B. Moore of Altoona was the representative for the Illinois State. Mr. Baxter was our representative. I am very sorry Mr. Baxter is not here. I expected him here; he expected to come and he did not send any report; he was not duty bound to do so; he is not even a member of our association, but we appointed him because he was a pretty good man to put in.

Mr. Miller—I was there but I was not a delegate and so had nothing to do with it; they retired to another room and did the business while we discussed questions familiar to us.

My suggestion is this: Is there any report of their proceedings in the Review? I think there is.

Mr. Kildow—I understand Mr. Baxter said there was no report made from Mr. Townsend in regard to the sale of supplies; no report made at all.

Pres. Kannenberg—As long as we have no report of this—the only thing we can take up is whether or not we shall have representation in the National.

Mr. Dadant—It is customary to vote on whether we shall join the National each year. I have been taking these memberships; I have been asked what goes with it, and I am telling them they have been getting membership in the National, which includes subscription to the Review, membership in the State and membership in the Chicago-Northwestern, and I have taken some of these membership dues on that basis, but of course it lies entirely with the Association what you wish to do in regard to joining the National, and the Executive Committee is open to instruction.

Mr. Ahlers—When are the dues collected and what are the dues all the way through?

Mr. Dadant—They are collected here, $1.50.

Mr. Ahlers—Don't you call a certain time when the members have to pay their dues?

Mr. Dadant—They have been paying them between sessions.

Mr. Dadant—The $1.50 is included in the membership if we vote to join the National in a body. We get $1.50 (the Chicago-Northwestern) and fifty cents is paid to the State Association for belonging to the State Association; they

in return give each member one copy of our meeting, furnish our stenographer; in fact, we cannot afford not to join the State Association. They pay our postage and other incidental bills. The National gets $1.00, that is for membership in the National and a subscription for one year to the Bee-Keepers' Review, and that makes $1.50, and we get what is left.

Mr. Coppin—I think the National gets $2.00; now that is the way I understand it.

Mr. Dadant—No, sir.

Mr. Coppin—What am I paying for? I want to join the National, the Northwestern and the Illinois State.

Mr. Dadant—Fifty cents, and if you join the National besides it will cost you $1.50.

Mr. Coppin—I understand it differently, if you join the State it was $1.00.

Pres. Kannenberg—It will cost you $1.00 if you join the State by yourself, but, through us, fifty cents.

Mr. Dadant—When you pay fifty cents you are supposed to be a member of the National. We get $1.50 for our dues—$1.00 goes to the National and fifty cents to the State. The Northwestern has never had anything. We pay out everything we get.

Mr. Kildow—It seems a kind of foolhardy business to me the way the thing is run now. We are to pay $1.00 to the National; we pay fifty cents to join the State Association; we come here and pay fifty cents to belong to the Northwestern; our book we print costs us over $1.00 to print. You people pay your fifty cents here; we get that book for fifty cents. We go down to our State Association and give $1.00 to get the same thing you are getting.

It looks to me kind of queer; we have to pay $1.00 down there and only fifty cents here.

Mr. Dadant—It is a poor rule that won't work both ways. He joined the State and National for $1.50 down there; he pays fifty cents for joining the National, so, by joining the National for fifty cents, it works the other way here.

I could not take one membership and send it to the State for $.50 but I can send it at $.50 for a bunch of us.

It is not simply one man to join the State—it is the Association as a body joining the State and getting $.50 rate.

You practically get the same thing; joining the National and the State you have to pay $1.00, and get $.50 for the National.

Mr. Bull—How does it come that you have to pay $1.00 to join the Illinois State while you can get it for $.50 if you are a member of the National?

Mr. Baldridge—I suppose the legislature provided for the publication of the report. Does not the State make an appropriation of $500 a year?

Mr. Coppin—Con you join the National Association as a body by paying $.50 for membership fee for the Northwestern and the Illinois State?

Mr. Miller—I move that this Association join the National.

Motion seconded.

Mr. France—What do you get for joining the National?

Mr. Kildow—I get nothing.

Mr. France—In Wisconsin we voted three years ago not to affiliate. That we would continue to pay $.50 a year State dues, and, if we joined the National, that is independent; it is simply subscribing for the Review.

Mr. Hawkins—I would like to see the Chicago-Northwestern Association stay out of the National; not as a matter of personal enmity at all; I do not think we get two cents worth of good out of it, and there are a great many members in the Chicago-Northwestern who do not care to be members of the National.

And, as this man suggested a while ago, before very long we are going to be called upon to pay the amount that is due yet on the Review. It is time that some of these energetic members dig down in their pockets and pay $5 or $10. I would like to see the dues of the Chicago-Northwestedn raised to $1.00, $.50 to go to Mr. Stone, and $.50 to take care of our business.

Mr. Miller—I do not believe it pays us to be knockers or anything of that sort. These people who are running the National may not do it as we think the best way, but if the National is going to be of any value to us we must get to the front and help them do something. If they have not done anything in the past, we cannot afford to drop it now; we must be boosters and not knockers.

I am willing to pay that $10 or $15 or $25 if it is going to be worth while; if it is going to be worth that to me I am willing to pay it. We have to help those things along if we expect to get results. The reason it is not get-

ting results is because so many people are pulling backward.

I am not in favor of some of the things they have done but we cannot make it any better by knocking.

We ought to be represented by a periodical. We have two other good Bee Journals; they are all right in their sphere but we want to be represented by a Journal of our own, and when I say we I mean the bee-keepers.

We should have an organization that will help us sell our honey. The fruit growers of California have an organization in every agency in the United States; why cannot the bee-keepers do the same thing? And we can do this if we pull together.

If we do not pull together it will result in failure. I am willing to pay whatever is necessary to put the thing on a sound basis.

Mr. Kildow—They have run it two or three years; how much benefit have you got out of it?

Mr. Miller—I have got more than $10 of benefit this year in purchasing supplies.

Mr. Ahlers—I pay the same price without the National.

Mr. Miller—You can get those now but if there was no National you could not buy 5-pound pails for $4.25; it is because the National is there and ready to furnish us with it. Before we had the parcel post we had to pay express prices, and it is the same in this.

Mr. Bull—I make a motion we all stand up who think they got fifty cents worth of good from the National last year.

Ten got good out of the National.

Mr. Bull—How many did not? Nine arose.

Mr. Miller—I would like to ask those gentlemen why they did not. Is it not their own fault?

Mr. France—I got good by being a subscriber to the Review; that doesn't entitle me to membership—but, when it comes to buying supplies, I could do myself justice, although a member of the National, not to buy my supplies through them. I could buy my cans or pails in Chicago at the same price that I could buy them of the National Association, and I would have the freight from Chicago to Detroit additional to pay.

The price of the Canning Company in Chicago today is the same as before the National took this matter up.

Pres. Kannenberg—A motion is before the House as to whether we join the National. Question: All in favor that we join the National in a body please rise.

Eleven for; against—9.

Mr. France—Will that obligate the entire membership to join the National?

Mr. Dadant—If they pay their dues.

Pres. Kannenberg—It is carried.

Mr. Wheeler—It seems to me every man in this room must have an opinion, and I do not think it would be any more than fair to the rest of us fellows to express it. We can stand up or sit down on that question; it is an even toss-up.

Mr. Ahlers—This vote is not fair; there are lots of people who do not show their colors. Give them a chance to vote in writing and turn it down or not as they see fit; this vote is not fair.

Mr. Hawkins—I should like to make a motion that the motion that this Association join the National in a body be recalled and that all the members be allowed to vote secret ballot.

Now I am going to join the National if you go in a body; I am going to abide by the decision of the majority. I move that we vote a secret ballot.

Motion seconded.

Mr. Hawkins—I will go with the majority.

Mr. Sylvester—Maybe you are looking upon us fellows who are sitting down as not wishing to vote. In the first place I am not a member of any Association and I want to belong to this Association as well as the National. But I do not want to get up and vote when I am not entitled to vote; I have paid no dues, consequently I kept my seat.

Pres. Kannenberg—We will have five minutes recess to allow you to pay your dues.

Mr. Dadant—There is a motion before the house to recall that motion.

Pres. Kannenberg—All in favor of recalling that motion, say yes; contrary, no.

Motion to recall carried.

Mr. Wheeler—Now I joined the Northwestern and the National last year. Am I not a member now at the present time? Why am I obliged to pay my dues now? I am already a member. Why cannot I vote before I join this Association? What is the use of paying $1.50 and then trusting

to Providence for getting part of it back? The question is, are we not, who were members last year, members up to the present time, and now?

Mr. Dadant—I think Mr. Wheeler is right; you are joining now for next year.

Mr. Miller—The difficulty in joining the National individually instead of in a body is that we are not represented by delegates at the National. There is nobody there to represent us and give the opinions and the desires of the members who belong to this Association.

I went to the National last year as an individual; I had nothing to say in regard to what was done. If we join in a body we can be represented, otherwise not; I think we should be represented in the proceedings of the National.

Now there is a new constitution to be voted upon. Do we want that new constitution or don't we? If we do not send a delegate we cannot instruct them.

Mr. Kildow—You have no right to charge $1.50 for next year.

Mr. Dadant—I find in my minutes November 30th and December 1st, 1910, as follows:

"On motion it was elected that the dues of the Association be increased to $1.50 per year, excepting those who are already members of the National, and those will pay $1.00 a year."

Mr. Hawkins—It occurred to me that, if we also are made members of the State Association by paying dues of $1.00, those who would not be represented by delegate if we do not join the National in a body would be represented by delegate of the State.

Mr. Bull—If we join the National by this Association we get double representation.

Pres. Kannenberg—We will have five minutes recess to pay dues.

Pres. Kannenberg—We have a letter we will ask the Secretary to read.

My Dear Mr. Dadant:

I am enclosing credential cards for your representative to the National Association to be held in Denver in February. Please fill out and return one to me and the other to your delegate.

You should carefully arrange that the persons appointed will attend the meeting. Otherwise you will lose part of your proper share of desired legislation. In the event that it is not possible for you to secure one of your own members to attend the Association, you are privileged to appoint some one, even outside of your state, to represent you by proxy. In such case you should specifically instruct your proxy as to the policy you wish to endorse, the officers you wish to elect, the action you wish him to take on the proposed amendments, and any other action you wish him to take for you.

You are one of the component parts of the Association and as such you are entitled to a voice in all the actions taken in this meeting. If the action taken in your absence does not please you it is your loss and you can blame no one else for it. If you fail to be represented you lose part of the benefits of the Association.

I would insist that every affiliated Association send its representative in person preferably, otherwise by proxy, fully instructed as to your needs. Can I have the assurance that you will attend to this personally so that it will not be neglected? Please return the cards and advise me as to the actions that have been taken. I remain,

Yours,

GEO. W. WILLIAMS,

Secretary National Bee-Keepers' Association.

Pres. Kannenberg—There is a motion in order that we shall join the National in a body.

Mr. Hawkins—I move the method of voting by ballot as I suggested.

Motion seconded.

Mr. Miller—This question is, I believe, still debatable. I think this subject should be more fully discussed.

Pres. Kannenberg—The motion is that we join in a body the National Bee-Keepers' Association. Are there any remarks on that motion?

Mr. Hawkins—We will call the motion for vote by ballot.

Mr. Miller—I rise to a point of order; that this motion is still debatable; there are other people who would like to speak on this subject.

Pres. Kannenberg—All in favor of this motion to take a vote by ballot signify it by saying aye; contrary, no.

The motion was carried.

Pres. Kannenberg—The question is open for debate.

Mr. Bull—Mr. President, it seems to me that if these other Associations all quit the National and leave them out in the cold—what is going to become

of the Review? Is not the Review worth the price we are paying for it? I have taken that Review for a good many years, when Mr. Hutchinson published it; I have not missed a copy since. If that Review is not worth $1.00 to any bee-keeper who has two or three hives or more, why, I don't know what I want to say about it.

Mr. Kneser—I believe exactly as Mr. Bull and Mr. Miller have stated.

I am willing to pay that $.50 and I think if we bee-keepers would ask a bigger price for honey we would be willing to pay extra without so much wrangling. I would like to see a lot of bee-keepers help the National.

Mr. Bull—I think the free advertising we get in the Review is worth the price of the Review.

Mr. Wheeler—What guarantee have we that the Review will be published?

Mr. Bull—All we have to do is to be behind it and push it; if we knock it we won't accomplish any good.

Mr. Hawkins—I think it will stay; as I understand it, if the Association should fail to pay the balance of the debt by a certain time the title to the organ goes back to the original owner; there is no doubt that he would continue to publish it.

Mr. Bull—In case the Review should go into bankruptcy, who is holden for it? Who has to pay the bill?

I believe the gentleman said a little while ago if the Review went under that we would be called upon to pay $10.00 or $25.00 to take care of it.

Mr. Kildow—I understand the National is not incorporated and we would not have to pay for it.

Mr. Bull—As near as I can understand it, from the Cincinnati meeting, the people who bought that Review are holden for it. They are making a brave effort; I say, stand behind them; they are doing their best.

Mr. Wheeler—I would like to know who holds the mortgage of the Review. I believe Mr. France knows.

Mr. France—I believe Mr. Tyrrell holds the mortgage, signed by two directors. The question comes up: Are those two directors responsible? Are they going to hold the membership, that is the membership at this time? The injustice of it is that they signed that contract before the members were notified. The members were not asked whether they should purchase or not purchase the Review. I am sorry for the conditions. I myself am a subscriber to the Review and will be as long as it is published, although every issue runs the National more and more in debt. It is an expense to our Association every year.

Mr. Hawkins—I had a talk with Mr. Tyrrell in Detroit. I believe it was two years ago next January, and unless I am badly mistaken he told me he had a contract between himself and two of the directors that they were to buy the Review for a certain amount within a certain time. I believe there is another year to run, and that, if the full amount was not paid in that time, the title would revert to Mr. Tyrrell, and, as I understand it, the amount of money that was paid him would be lost to this Association.

Mr. Miller—One point: This is the age of organization. The canning people are organized; we have organizations of all sorts. We cannot accomplish any thing without organization, and that is why I believe in upholding the National. It is an organization that will assist us in many points if we put it on a proper footing.

I deplore some of the things they have done in the past, but we must look to the future and not the past.

Will it help us in the future if we help it along? I believe it will.

Mr. Hawkins—I would like to hear from Mr. France if he knows why the Wisconsin Association withdrew their affiliation.

Mr. France—As individuals we couid not see wherein we would be benefited for the amount of the payment. There are over fifty in our state who are subscribers to the Review but not members of the National. They say that if the Review is worth while it will publish itself, and that the subscription price ought to pay it, and we paid our $1.00 subscription gladly, but not as a National member.

Pres. Kannenberg—I will appoint Brother Wheeler and Brother Bull as tellers.

Pres. Kannenberg—If the tellers are ready to make a report, having counted the ballots, we will hear the same.

The result of the vote was: Yeas—19; Nays—15.

Pres. Kannenberg—The motion to join the National in a body is carried; we will now be represented in the National; the election of a delegate will be in order.

Mr. Dadant—Mr. President, I would like to ask if anybody in this room expects to go to Denver to the National Association Convention at their own expense.

Mr. Bull—I expect I will go.

Mr. Burnett—Mr. President, I nominate Mr. John C. Bull as our delegate to the National Convention.

A member—I move that the nominations be closed.

Motion seconded and carried, and the Secretary was instructed to cast the ballot of this Convention for Mr. John C. Bull as delegate.

Mr. Dadant—The next thing in order is the question of joining the State in a body.

Mr. Bull—If there is any one else who has an idea of going, it would be well to have an alternate. Mr. Miller thinks he will go; I nominate him as an alternate.

Motion seconded and carried.

Mr. Dadant—I move you that we join the Illinois State Association in a body.

Motion seconded and carried.

Pres. Kannenberg—We have a paper here from the Review about a donation. If this Association wants to donate anything for the Secretary, to send him to Denver, Colorado, we will have to vote on it; if not, we won't send anything. I would like to have remarks.

Mr. Miller—I would like to ask the Secretary if we have the money.

Mr. Dadant—The books show that we have $1.86 in the Treasury at the present time. We have some money coming from the State Association, about $14 or $15.

Mr. Burnett—Are the delegates and alternates expected to pay their own expenses?

Mr. Dadant—Yes.

Mr. Burnett—It seems to me if we have any money to vote out we ought to vote it to the delegates, but, our Treasury being bankrupt, I do not see what we can do.

Mr. Miller—I think the delegate here and the alternate are willing to pay their own expenses. I move that the $5 suggested be voted the National for the expense of the Secretary.

Mr. Bull—I have the same thing to say about it.

Mr. Wheeler—Second the motion.

A member—If our delegates can pay their own expenses, what is the matter with the National's Secretary paying his own expenses?

Mr. Wheeler—I understand this gentleman said like this: If you will pay us $5 for expenses we will turn that $5 over to help pay for the Review; if that is not the case I will withdraw my second to that motion.

Mr. Miller—My motion was that the $5 be given to defray the expenses of the National Secretary of the Association at the convention to be held in Denver.

Mr. Bull—I second that motion.

Pres. Kannenberg—All in favor of this motion that we donate $5 to this Secretary of the National say aye; contrary, no.

The motion was lost.

Mr. Hawkins—I make a motion that we adjourn.

Motion to adjourn seconded and carried, to convene at 1:30 p. m.

AFTERNOON SESSION.

Meeting convened at 2 o'clock January 18, 1915.

Pres. Kannenberg—Nominations are now open for President.

A member—Mr. President, I nominate N. E. France for President.

Motion seconded.

Pres. Kannenberg—Mr. N. E. France is nominated; are there any other nominations?

Mr. France—I think you should elect some one who lives near to Chicago, some one whom you may depend on; I have promised five different places that I would be at their convention this year, and you are the only one where I have been.

A member—That is the reason you should be President of this.

Mr. France—If it is in order I would like to nominate Mr. Kannenberg, our present President.

Mr. Wheeler—I second that nomination.

Pres. Kannenberg—Are there any other nominations?

Mr. Simmons—I move you the nominations be closed.

Motion seconded and carried.

Mr. Kannenberg—I appoint Brothers Bull and Wheeler as tellers.

The tellers made report as follows:

Mr. France—15; Mr. Kannenberg—10.

Pres. Kannenberg—I declare Brother France elected as President for the

next ensuing year of the Chicago-Northwestern Bee-Keepers' Association.

Pres. Kannenberg—Whom will you nominate as Vice-President?

Mr. Dadant—Mr. E. S. Miller.

Mr. Miller— I have more business than I can attend to.

A member—I second the nomination of Mr. Miller.

Mr. Dadant—I move the nominations be closed and the unanimous vote of this association be given Mr. E. S. Miller for Vice-President.

Motion seconded and carried.

Pres. Kannenberg—Mr. E. S. Miller is declared elected Vice-President of this Association. Whom will you have for Secretary-Treasurer?

Mr. Baldridge—Mr. Louis C. Dadant.

Mr. Dadant—I have been in office for several years; I would rather be excused.

Mr. Bull—I nominate Mr. E. H. Bruner as Secretary-Treasurer.

Mr. Dadant—I withdraw my nomination if Mr. Baldridge will allow.

Mr. Dadant—Mr. President, I move you that the unanimous vote of this Association be cast for Mr. E. H. Bruner as Secretary-Treasurer of this Association.

Motion carried and Mr. Bruner declared so elected.

Mr. France—Before going any further I am reminded that up in our state we have a standing legislative committee; I think it would be well that you have such a legislative committee.

Pres. Kannenberg—How many members do you elect?

Mr. France—Not to exceed three; a committee of one to three is better than one hundred.

Pres. Kannenberg—We are now open for the election of a legislative committee of three.

Mr. France—I would suggest, Mr. President, that one of that committee be your State Inspector, who is the one directly interested in your welfare, and if there is anything that turns up he would be likely to know it first.

A member—I nominate Mr. Kildow.

Seconded and carried.

Mr. Dadant—Your coming Secretary, Mr. Bruner, is right here in Chicago and he probably could do us lots of good here. He would be the man to put on that committee; I would suggest our future President, Mr. N. E. France, Mr. Kildow, and Mr. Bruner be elected the legislative committee; they are all wide awake; are on to the ropes, and will know what to do when the time comes. I make a motion to this effect.

Motion seconded and carried.

Pres. Kannenberg—Mr. N. E. France, Mr. Kildow and Mr. Bruner will serve on that committee.

The next thing on the program is Stimulative Feeding, by Mr. Kenneth Hawkins.

Stimulative Feeding.

(By Mr. Kenneth Hawkins.)

Mr. Hawkins—I am too young in experience to come before a Convention of bee-keepers and tell you very much.

I do not believe that stimulative feeding is necessary except in very rare instances, especially for the producer of honey. I know in my own experience that a great many times I have found queens in the spring of the year, after a hard winter when the stores would be light, that had not yet started to lay very many eggs. In fact this last spring I found one or two that even after all the others had gotten a good start had not yet laid a single egg. You may say, on the spur of the moment, that you would not have such a queen in your apiary; it must be a pretty poor one.

But I think some of you will agree with me that if a colony should go into winter quarters lacking stores, and have a hard winter, and having fruit bloom frozen so that the only stores were from a few dandelion, and would struggle along, and in spite of freezing nights and continual rain—that under such circumstances it might be well, and I have found, the feeding of a very thin syrup, not more than once or twice, will do a great deal to start that queen laying immediately; and like a good many other people you might say that all she seemed to need was a little helping hand; and a little stimulative feeding of that sort would cause her to lay in good shape and be all the better for it.

I believe most experienced bee-keepers think that stimulative feeding should be done in the fall; that it is very foolish to put a colony in winter quarters with just stores enough to carry them through the winter and depend on fruit bloom or dandelion or

whatever your spring flow is to get them going in the spring.

It may seem pretty expensive to buy sugar at war-time prices and feed it, but I think it always pays to put a colony in winter quarters with a great many stores because it has been evident to me that colonies in the spring, with an abundance of honey, do more towards building up than colonies that require stimulative feeding.

It seems to me it does not make any difference how much sugar you shoot into a colony in the spring, it does not do as much good as if they had their own honey to use.

Some advocate changing the combs around inside the hive.

I have found that best in my locality. We do not have a honey flow until about the middle of June anyway, sometimes the last of May. For the last four years now the flow from fruit bloom—it has been entirely frozen.

I found in a number of colonies this spring there was a very small amount of brood in because of no honey flow. It only required three or four pints of thin syrup to pack that hive full of brood almost more than they could cover, and I have no doubt if I had not fed that thin syrup the queen would have gone along probably quite a time before she would have anywhere near like more brood than she could cover.

I can heartily endorse the action of the Chicago-Northwestern last year in endorsing Mr. Thale's feeder. You can always see your feed; and this feeder works with the least trouble to the bee-keeper; you can tell when it is empty by being always able to see your feed, and with almost no disturbance you can fill the feeder up again.

I think it is much better to feed from the bottom of a colony than from the top because it seems to me that opening the hive on cool days in the spring from the top, even for a short time, to lift out the feeder and put in another, lets a large amount of heat out of there and that must be detrimental to the colony and the queen.

For feeding in the fall where any amount is fed, I think the Thale feeder is hardly the thing; you cannot feed enough at a time. I should then prefer the Miller. One of the members said they used a friction top can; punched holes in and set it over the frame. It seems to me in the fall the quicker you can get the syrup into the hive after the time you start to feed, the better it is for the bees and all concerned. Your labor is over more quickly.

The Division Board feeder I do not like. I do not believe very many people like it very well. It either feeds too fast or too slow; that is my experience.

This last fall when I had to feed a number of colonies to get them into winter shape, I had the worst time to get the bees to take honey out of the Division Board feeder; I tried mixing it thin, mixing it thick, and mixing it medium, and I came nearly to a point of putting a little strong drink in the feed.

I had to go back to the Thale feeder or use the Miller feeder.

I do not think it best to use anything besides sugar syrup for stimulative purposes.

One might buy honey and thin it down, but I think in these days of American foul brood one runs too much of a risk in getting honey from diseased sources.

O course it is possible to dilute this and boil it, but it has been my experience that the bees do not take it so readily.

It seems to change the taste; I know it changes the color; and sugar syrup is the best all round.

Of course when breeding queens there is no doubt that stimulative feeding is necessary almost any time unless there is a big honey flow on.

I think you will find if you raise your own queens you will get 75 per cent more cells accepted if you feed them an amount of thin syrup than if you do not use any, and looking at it from a queen breeder's point of view, which is about the only point of view I have, I like the feeder best.

In raising queens: I cut a small hole in the bottom of my super box and inserted a Miller feeder; I fixed a block on the inside of the box so that the feed could be regulated as it is on the hive without the bee escape, and I found that worked much better than to put the two combs of honey in swarm box or division feeder in the swarm box.

I do not know that there is much more that I can say about Stimulative

Feeding worth while because my experience has been too short.

I told the Secretary when he asked me to talk on Stimulative Feeding I did not think I knew very much about it.

Mr. Miller—There is one correction: I don't think he said just what he meant about punching holes in the bottom of a friction top pail; he said "punch holes in the pail"; if you do that the honey will run out. Punch holes in the cover and invert the pail, or else, without using the cover, fill the pail and place over it cheesecloth—and invert the whole thing. I find that a bee escape board with the opening in is very convenient as it allows the escape of heat from the hive. If the holes are punched in the pail as he says the sugar syrup will run out.

Mr. Hawkins—I meant punch holes in the cover.

Mr. Bull—I use for stimulative feeding: A friction top can; instead of using the bee escape I use common ordinary roofing paper; I can get scraps for practically hauling away. I cut the heavy paper the same size as the hive; and cut a little circle smaller than your can, cover it over, and no heat can escape. That roofing paper is air tight; set your can over that. When you want to change, take the empty one off and put the new one on quicker than a wink.

Mr. Hawkins—Speaking about division board feeder, I have seen so many complaints in bee journals; has any one had experience with the division board feeder?

It pays to take a small stick just as wide and long as the feeder and put that in and let it float on top of the syrup and the bees have something to sit on, and it keeps them from floating in the syrup and drowning. I think it is necessary to use a stick in the division board feeder.

Mr. Bull—I have some division board feeders and use a stick something like the bottom bar right inside the feeder; leave it there all the time, and that will keep the bees from drowning; I never had any bees drown.

Mr. France—Just a word in regard to that float in that style of feeder. If the corners of that float are cut round it will not catch and stick on the side.

Mr. Sylvester—I am a kind of new man here. I do not know very much about bee-keeping anyway but I know one thing that if a man followed all the suggestions that are offered in the journals and the circulars that are published he would not have very much left after he had sold his honey crop.

I find that in feeding bees the most simple way has always been the best with me. I have heard this gentleman talk about the division board feeders.

When I started in bee-keeping everything that was in the catalogue I had to have, no matter what it cost, and those division board feeders, I believe, will swallow more bees than they will save; although I put the float and perforated it with holes, I generally had about ½ to ¼ inch of dead bees down at the bottom of the feeder.

I have tried the Miller feeder, and I have got piled up in my bee house many feeders. I tried everything in the catalogue. I think that you can feed bees with an inverted can, or simply put a pan or anything that will feed inside of your super; I put a gunny sack over the top of that, and the bees get every drop of syrup out of that and never drown a bee.

You have to simplify things if you are going to get anything out of your honey. If you spend everything for experimenting and fixtures there will be nothing left when your honey crop is in.

A member—I think you can go further, and start out and standardize and then you have one size all the way through your yard and everything fits.

Mr. Bull—That is a good idea; keep everything the same. When you have two or three of every kind along the line you are up against a hard proposition.

Mr. Sylvester—I had the 8 frame hive that was advocated to be the best. Then I got a circular from some men in Michigan stating that there was only one hive you could produce comb honey with and that was the Hadden hive; so I tried a lot of Hadden hives, and when I came to winter my bees—and the spring came, I did not have any bees. They were all right through the summer.

So one thing after another I got in trying to get the best, and I have tried nearly everything.

Now I have got down to the 10 frame hive and you cannot get me out of that rut if you tried.

Mr. Wheeler—I cannot stand that be-

cause for 28 or 30 years I have been using the Hadden hive and I would not have anything else.

Mr. Coppin—I believe this gentleman is the only one I know of who liked the Hadden hive; I thought they had gone out of existence.

Mr. Wheeler—I won't change.

Mr. Hawkins—I believe we are all agreed on the 8 or 10 or 12 frame hive.

An old gentleman keeps bees in the town where I live; I have seen him quite frequently trying to put a 10 frame super on an 8 frame hive.

Mr. Wuetig—I sometimes use an 8 frame super on a 10 frame hive and a 10 frame super on an 8 frame hive. I nail a 7-8 inch strip on an 8 frame body and use a 10 frame super; or nail 7-8 inch strips on 8 frame super and put that on a 10 frame hive.

A member—I think the simpler way would be to make regular frames and then you could make your changes.

Mr. Sylvester—I think the majority of bee-keepers have truck enough around their yard without going to that extreme.

I did have 8 frame hives; I had 90 of them, and I either sold them or cut them up for kindling wood. I have standard hives and supers and everything.

Pres. Kannenberg—We have on our program—"Brood Rearing for Crop Results" by Mr. E. L. Hofman. We have no paper from him and he is not here.

Mr. France—Just a word in behalf of Mr. Hofman.

I have gone a long ways out of my way to visit his apiaries. At one time I reached there about 6 p. m.; he met me at the station and he telephoned home that he had captured his bird and would be home before bedtime.

He took me in the automobile to all of his out apiaries before we reached his residence.

The one reason why one individual man handled 400 colonies of bees with one or two helpers, and an average acreage of farm land, is because he is a man of system; everything has to be done systematically; always by system.

In the putting on of queen excluding honey boards. One man cannot do that. They will take a wheelbarrow with a lot and, as they are coming along, putting on the bee escape boards, two or three can work to advantage over one. But all is done in that line of work before something else is taken up.

His extracting outfit: He goes to one yard and finishes the whole season's crop and then goes to the next. He tells me that, 22 minutes from the time he arrives, the gasoline engine is busy and they are in operation again.

Three men carry that gasoline engine from the wagon and soon it is in place and in motion. He has telegraphed ahead and has everything ready when he gets there.

If I could drive but one nail at this Convention I would like to have it this one—System.

Mr. Dadant—I am very sorry that Mr. Hofman is not here. I have not had the pleasure of meeting him myself but I have read several papers of his—and the way he raises his brood and manipulates his hive bodies and so forth is something pretty nice. I cannot give it to you but he certainly gets results.

Pres. Kannenberg—The next thing on the program will be Comb Honey—Preparing for the Crop, by A. N. Kildow.

COMB HONEY—Preparing for the Crop.

Mr. A. L. Kildow.

(See his picture as State Inspector.)

To obtain the best results it is essential to have the colonies go into winter quarters with good queens. A good bunch of young bees and an abundance of stores to last them until spring.

Then before spring opens, such work as getting hives ready for swarms, and supers filled with sections, should be done. Make an estimate of the number of supers required for each colony, being sure to make that estimate high enough.

For in good honey flow it is better to have more supers than needed, rather than not enough, for in this case time is money.

If the colonies are to be wintered out doors, I remove the enamel cloth, spread over the frames several thicknesses of gunny sack, or old carpet, then place an empty super on the hive and fill it with chaff and put on the cover.

This method has been very satisfactory with me.

I have ceased to practice indoor

wintering. But when I did I simply removed the enamel cloth, spread gunny sack or carpet over the frames, and stacked the hives up as high as I cared to lift them, and then left them until I thought spring had come.

When I removed the bees from the cellar, I did it in the evening or just at dark, thus keeping the bees from flying, and they would quiet down before morning.

As the next day warmed up the bees would come out gradually, thus giving some colonies their flight before others started.

On taking them out, mark all light colonies and give them immediate attention, that is if the weather will permit. If any are short of stores they should be given enough to last them over a possible two weeks of bad weather.

Then again examine them to see if they have plenty, and about the first week in May all colonies should again be examined, and, if they are not breeding properly, break the cappings of the sealed stores. This will cause them to remove the honey from the broken cells, or the colonies may be stimulated by feeding.

At this time all colonies showing good strength should be given a shallow super of drawn combs, or a full depth story as the case demands, allowing the queen free access to all.

This is done to prevent the early swarming, which in my locality begins the middle of May if not thus treated.

When the flow starts the extra brood chambers should be taken off and supers of sections put in their place, being careful to give them as much room as you take from them.

The first supers should have about four sections of drawn combs, or a shallow drawn comb in the middle of the super.

Sometimes it is even advisable to use two drawn combs, one on each side of the super.

This method seems to satisfy the bees better than to give them empty sections when removing the extra brood chamber.

As the flow advances and the colonies are working in all the sections of the super, I raise it up, placing another super of sections underneath, and so on as long as the flow will warrant, at the same time I am watching the fields that I may know about how long the flow will last.

When I believe the flow is beginning to slacken, I am cautious about adding new supers. This is where your judgment will be taxed to know just what to do, whether to put any more supers on at the bottom, or on top.

It might be well to follow Dr. Miller's plan, "keep an empty super on top," putting this one below when needed and the empty one on top again. This will reduce the number of unfinished sections.

All comb honey producers are confronted with the swarming problem. I have no ironclad rule to follow, preferring to use my judgment for each colony.

I have practiced cutting queen cells, but do not like it. If a colony is bent on swarming the quicker I can get it to swarm the better it suits me.

I then place the swarm on the old stand, and immediately shake all the remaining bees from the old colony, or put the old colony by the side of the new swarm for five or six days, when it may be shaken and the remaining brood given to some weaker colonies, or several of these old colonies that have swarmed may be tiered up and run for extracted honey, or you can, if your colonies swarm in the early part of the flow, stack three or four of the brood chambers up, and in about six or eight days shake all top stories into the lower one, and put on your super of sections.

If the season is a fair one this colony will give a good account of itself.

Before this last shake examine to see if any queens have hatched. If one has hatched all well and good; if not, select a comb that has a good looking cell and place it in the lower hive body, then shake all bees off the remaining combs, and use these combs as your judgment directs.

The secret of getting ready for the crop is in beginning early to get bees in good shape, be vigilant about swarming, and have your supplies ready when needed.

Mr. Hawkins—I would like to ask Mr. Kildow if he has had as good results putting the empty super on top as underneath.

Mr. Kildow—Dr. Miller's plan, I believe. And it seems to work very

good from what he says; I have only done it in a few cases, but have not practiced it to any extent.

Mr. Coppin—A bee-keeper should use his own judgment as regards the honey flow as to whether he puts the the empty super on top or underneath. If the prospects are that the honey flow is going to continue any length of time he had better put his super underneath. I always look in the field and pass my judgment on what the honey flow is going to be before I put on any more supers (whether to put them on top or underneath). If I consider the honey flow is going to continue, I put the supers underneath; if I am doubtful, in order not to have any unfinished sections, I put them on top; if they do not get filled there is no damage.

Mr. Bull—There are a few things that have come up in regard to this new Constitution that will be acted upon in Denver, that I would like a little instruction on, if I am to go down there as a delegate.

One is in regard to incorporating. Do you want the Association to be incorporated?

Mr. Miller—I would suggest that this proposed Constitution be taken up section by section and discussed and then voted on later.

I move that this be done.

Motion seconded—carried.

Mr. Dadant—Here is the proposed Constitution: This is the National, you understand, and our delegates want instructions, and it has been asked that we read this, section by section. I take it from the November number of the Review.

Notice to Affiliated Association Secretaries.

On another page of the Review you will find published the Constitution of the National Bee-Keepers' Association. Following will be found the proposed changes of said Constitution, as proposed by the delegates at St. Louis, Mo., at our 1914 delegate meeting. Following the delegate proposed changes, you will find other proposed changes that have been suggested from time to time.

You are hereby requested to notify your Association of these proposed changes, and they to instruct their delegate how to vote upon said changes at the February, 1915, meeting.

You will kindly notify your delegate to the 1915 meeting that nothing can be added to these proposed changes at said meeting, but any undesirable portion can be omitted. See Article X of Constitution on another page.

ARTICLE I—Name.

The name of this Association shall be The National Bee-Keepers' Association.

ARTICLE II—Object.

The objects of this Association shall be to promote the interests of bee-keeping by the dissemination of useful and scientific knowledge concerning the care of Honey Bees and their products; the care of and marketing of Hive products; to promote social relations between those engaged in bee-keeping; to create and maintain greater public interest in bee-keeping and its importance in relation to Agriculture and Horticulture, and to advance the welfare of the members by all means not inconsistent with this Constitution and laws hereinafter adopted.

ARTICLE III—Powers.

Section 1. For the purpose for which this Association is organized as specified in Article II thereof, The Association have power:

(a) To have and keep a corporate seal.

(b) To hold in its corporate name such property as shall be deemed necessary and useful in carrying out the purposes of its organization.

(c) To print and publish such magazines, papers or other publications or periodicals as may be deemed essential or necessary to the purpose of the Association.

(d) To buy, sell or otherwise deal in such papers, books and bee-keepers' supplies as may be deemed beneficial to the Association or its members.

(e) To arrange and carry out plans for advertising honey and for obtaining publicity for hive products.

(f) To promote Lecture Courses, Field Meetings, and other educational means and methods in the science of bee-keeping as shall be deemed best calculated to promote the welfare of the Association and its members.

Mr. Burnett—I move that we instruct our delegates that the body be incorporated.

Motion seconded.

Pres. Kannenberg—It has been moved and seconded that our delegates be instructed to vote for the incorporation of the National. All in favor signify it by saying aye; contrary, no.

Motion carried.

Mr. Burnett—I moved that our delegates be instructed to favor the incorporation of the National. It is for the purpose of protecting the individual members of an organization of this kind. I think the chief difficulty has been this past year that the members feared that any deficit that might occur would come upon them individually. Seeing that a majority of a voluntary organization cannot be recovered from by law, a suit at law, there are those who have something who will have to foot the bill. Under an act of incorporation, the individual is relieved from liability; it also makes a body which can sue or be sued. It has all those advantages over an ordinary organization.

I move we approve Article III as read. It is not wise to bind our delegates to any set of resolutions we may think wise here. When the delegates get together it may be deemed expedient to our delegate to favor something contrary to our thought at this time; we do not know what may come up at the convention.

While we say we approve of this outline for the new Constitution and By-Laws it is for the purpose of guiding our delegate and not compelling him to take some arbitrary course at said convention.

Pres. Kannenberg—It needs no motion; just instruct the delegate to use his best judgment.

ARTICLE IV—Funds.

All moneys received by the Association shall be devoted:

(1) To the expenses of carrying on the organization, including the salaries of the officers and payment for supplies and merchandise, printing, etc.

(2) All surplus moneys remaining after the necessary expenses of the Association have been paid shall be expended as the Association shall direct in the circulation of literature in relation to bee-keeping, providing lecture courses, and such other educational means and methods as may be deemed essential to the interests of the Association or its members.

ARTICLE V—Membership.

Membership shall be limited to persons who are in sympathy with the purposes of the Association.

ARTICLE VI—Annual Meetings.

The Annual Meetings of the Association shall be held during the month of February of each year, and shall be composed of delegates selected by the respective affiliated Associations. The exact date shall be determined by the Executive Committee and Directors.

ARTICLE VII—Officers.

Section 1. The officers of this Association shall be: President, Vice-President and Secretary-Treasurer, who shall hold their respective officers for one year, or until their successors are elected and qualified, and five Directors, who shall hold their offices for a period of two years;

Provided, That, of the first Board of Directors, two members shall be chosen for a term of one year, and three members for a term of two years.

ARTICLE VIII—Duties of Officers.

Article VIII gives the duties of officers, and Article IX gives the "Organization of the Executive Committee and Further defining the Duties of Officers."

ARTICLE X—Membership Fees.

A membership fee of two ($2.00) dollars per annum shall be paid by each member of the Association, of which one ($1.00) dollar shall go into the subscription fund and one ($1.00) dollar shall go into the General Fund.

Mr. Burnett—That subscription fund means—

Mr. Dadant—I suppose this dollar is for the purpose of the publications referred to in Article III—whatever that may be.

Mr. Burnett—That makes a division, $1.00 for that and $1.00 for what?

Mr. Dadant—$1.00 for the subscription fund and $1.00 for the General Fund.

Mr. Burnett—I think that that division is unnecessary; let all the money, would be my thought, go into the General Fund and be drawn therefrom in the judgment of the Directors or Executive Committee as necessity may require. This thing of making an arbitrary division might be found at some time convenient.

Mr. Dadant—In publishing a paper like the Journal or a periodical, second class matter, it is necessary that the subscription shall go direct; you cannot take it out of the General Fund and then hand it over to the publisher of the paper unless you have subscriptions from each separate person; and for that reason they would have to have $1.00 from each member for a subscription to the Review.

We could not send in $30.00 to the General Fund and then take it out for subscription to the Review, without a dollar from each member being paid for a subscription to the Review.

It is simply a technicality of the Post Office Department; they will not allow it to be done any other way.

When we send our money in now—if I use their blanks—it is as subscription to the Review, and, incidentally, membership to the National, but it has to read, "Subscription to the Review", in order to make it legal with the Post Office Department.

Mr. Burnett—This does not prevent, however, the directors from voting out of the General Fund more money for the support of literature or magazine, or whatever they may see fit to send out.

This is something I think I would prefer, at this time, not to rule upon, but let our delegates thresh it out at for convention; but it seems to me the amount of $1.00 is in excess of what is necessary.

Mr. Dadant—There is an Article on "Amendments" here:

ARTICLE XI—Amendments.

This constitution may be amended at any regular meeting of delegates by a two-thirds vote of the delegates present; Provided, however, that at least ninety days' notice has been given to all affiliated Associations.

Mr. Dadant—Here is something in small type:

"Secretaries are further notified that the following Rules will be acted upon at the next delegate meeting in February."

Rule No.—. There shall be an annual fee of fifty cents collected from each member of the National Bee-Keepers' Association; said dues to be receipted for by the Secretary, and receipts turned into the general fund of the National to be used the same as other funds of this department. Said fifty cents paying the annual dues of the member one year from date of his receipt card.

Rule No.——. Annual receipts from members residing in states, territories, or D. C., where there is no affiliated association, shall be turned into the general fund of the National Bee-Keepers' Association.

Rule No.—. That officers and directors of the National Bee-Keepers' Association all be elected by a direct vote of the members, by a mail ballot furnished for that purpose; and that no delegate meeting shall be called, except as may be deemed necessary by the board of directors. Said meeting and place of meeting to be decided upon by said board of directors.

Mr. Burnett—Do you understand that fifty cents is in addition to the $2.00 membership?

Pres. Kannenberg—It looks that way.

Mr. Dadant—This is an amendment as I understand it.

Mr. Burnett—It seems to me, Mr. President, it is well at this time for us to express ourselves in favor of having the financial burden as light as possible, and thus get a large membership instead of getting a few as has been done in the past.

If you get a great majority of the bee-keepers in there will be your strength, not what you can get in the way of $2.00 over $1.00 per capita.

Mr. Miller—I understand that last was not a part of the constitution, but were suggestions that have been offered instead of some of those things that have gone before.

Mr. Miller—In regard to making these expenses light: It is a question whether that is advisable or not. We get only what we pay for. If we pay more the Association can do more for us.

I think it would probably be the cheapest advertising we could do—to do it through the Association. Of course this is an open question. Some people think we ought to get along as cheaply as possible.

Mr. Burnett—The thought is, would not 1,000 members at $1.00 be better for the Assocation than 500 at $2.00 apiece? In that way you spread your literature coherence amongst the fraternity which will enable you to carry out your plans and be a power in legislation.

I have been associated in the bee

business for 36 or 37 years without taking much active part in it. I think the National has done much good, and I think that during the time that Mr. France conducted it we certainly had results that have told and are telling today.

Now I would be glad to have him express himself with regard to this. I know he is exceedingly modest but we want to get at the facts.

I know from experience in various organizations that numbers count for more than dollars when it comes to the matter of getting legislation; and if you have an organization that is numerically powerful you will get r-e-s-u-l-t-s much better than if you have a little surplus in your treasury and not means to use it with.

Dollars will come as soon as you can show some results accomplished.

A member—I would like to hear from Mr. France about that.

Mr. France—I want to endorse Mr. Burnett's remarks; and I was the one who was guilty of dropping the dues of the National from $1.00 to $0.50. We found that fifty cents was not enough, but in making that change I had almost trebled the membership, so that there was a feeling up about the time of the meeting at Minneapolis that if there was an emergency case and we needed funds; in case a member was in great distress, or in some way the Association wanted funds, that if we simply sent a circular to that effect the funds would be forthcoming at once, leaving the funds as it were in the hands of the bee-keepers for emergency.

I do not approve of high tariff, or duty in any form; let the dues be modest and the organization members will take care of emergencies.

I am sorry that the changes have been made in our National. They were ready at the time of the Minneapolis meeting to drop the fifty cent idea and go back to the basis of $1.00 dues and continue 4,000 members, but dissatisfaction has followed since and the membership has run down badly; and as Mr. Burnett says—First, let us have members, and then we can raise the funds if need be.

Mr. Hawkins—Would a motion be in order that the delegate may use his judgment, and if possible vote in favor of all sections except the one increasing the amount of dues? If it is, then I make such a motion.

Mr. Miller—Before we vote on that, there is another point that might well be discussed, and that is: Do we want the National meeting a delegate convention or do we want it for everybody as it was formerly?

I think if you will look on the other page of the Review, in fine print, there is something that has been suggested as a substitute in place of this delegate meeting.

Mr. Dadant—The last suggestion is: "That officers and directors of the National Bee-Keepers' Association all be elected by a direct vote of the members, by a mail ballot furnished for that purpose; and that no delegate meeting shall be called, except as may be deemed necessary by the board of directors. Said meeting and place of meeting to be decided upon by said board of directors."

That is to say, as I understand it, you will elect your officers for the National by direct mail vote, and, in case anything comes up to be acted upon, delegates shall be called upon to act.

Mr. Burnett—I think the plan to elect directly from the masses or from the membership direct was tried for a number of years. It was during the time that Mr. France was General Manager, and he is better fitted to talk upon that number than anybody else, but while I am on my feet I will say that, today for example, we are here an organization in the northern part of the state of Illinois, a membership from surrounding or contiguous territory, and we select a man who we consider has the interest of our business at heart.

We take from our own membership some one we consider qualified to act as our representative; and by that means we get intelligent representation. We can meet at the National convention by having a delegate representative. It is on the principle of our government, which we consider to be the best in the world today, and therefore I certainly most heartily favor the delegate system.

My experience is, that, I have voted for people I did not know under the other plan, simply to fill up the blank. If I vote for a delegate, I know what I am doing. I know that he is going to represent our interest to the best of his ability, and he will make a great

many less mistakes than we will make by voting en masse.

I would like to hear from Mr. France.

Mr. France—In regard to the old system of voting, I was certainly tired of it. I received many, many blanks to this effect: "I don't know; you vote for me."

The delegate system, if properly conducted—by which you have the one right before you, who you know will use his best judgment to act in your place—is certainly proper; but there is one feature of it that I do not exactly approve of: That these National meetings almost bar out the idea of a national gathering of bee-keepers. It has broken up that brotherhood among whole masses of bee-keepers that I do not like.

I remember when I was in the eastern states, especially in New York, a committee retired from the convention and did all the business while we were talknig bees—but, when it comes to the National convention, we all that are there are delegates; and it bars you and me, unless we are delegates, from taking part.

Mr. Burnett—I quite agree with the sentiments of Mr. France in this matter but, as he says, this organization is a National one. We are a mighty big country and 90 per cent of the attendance at the convention in Denver, we will say 75 per cent at least, will be delegates and all interested in the convention having a vote.

The other feature of it is that those who wish to take part in the proceedings of the convention may not do so only by courtesy, but are often heard if they make a special request to be so heard.

Mr. Burnett—I move you that the organization be conducted on the principle of a delegate.

Motion seconded and carried.

Pres. Kannenberg—Is there anything else that the delegates want instructions on?

Mr. Hawkins—What about voting on the National dues?

Pres. Kannenberg—It was to be left more to the delegates than anything else.

Mr. Wheeler—I think the delegates that are interested will understand that Constitution before any of the rest of us. If they want to know what we want on certain subjects why don't they ask us?

Mr. Hawkins—I made a motion a while ago that the delegates be instructed to vote against increasing the dues in the National Bee-Keepers' Associataion.

Mr. Sylvester—I think we are putting the burden on our delegates here that it would be pretty hard for them to carry out. When they get down there and find all the other delegates are against them, if we make them pledge themselves to uphold our resolution they might possibly just as well stay away. I think that the delegates we have chosen have intelligence enough to advocate such matters as best for the Association and will be governed in their actions as to what matters come up there.

I think they will find other delegates there who are just as much opposed to High dues as probably this Association is. For my part I think the delegates are capable of taking care of the matter.

Mr. Hawkins—I do not want my motion to be misunderstood as questioning the intelligence of the delegates. If this Association wants to vote against an increase in fees the delegates want to know what we want them to do.

Mr. Burnett—I would like to ask Mr. Bull what he had any doubt about as to the sentiment of this meeting.

Mr. Bull—It is pretty hard to tell.

A member—I second Mr. Hawkins' motion not to increase the dues of the National.

Pres. Kannenberg—You have all heard the motion, not to increase the dues of the National; all in favor say aye; contrary, no.

Motion carried 10 to 1.

Mr. Burnett—The fact is if our delegates make a protest there they are not going to be alone. I am sure that the presence of such men as we send to the Denver convention is going to be felt; and if they cite, as we have here, our reasons for favoring a low fee and a large membership, I think they will stand a big chance of carrying the day, and if they do not do it now they will some day.

Mr. Kildow—If the state of Illinois drops out of this Association it will take out about four-fifths of the members.

Mr. France—It is drawing towards

the time when I will have to be making towards the station.

I want to call the attention of this convention for a few minutes to this new package gotten out for mailing honey, 12 lb. net weight.

This has gone from my state to Chicago by mail; there is first this screw top (illustrating); under that, pressed in very tight, is the friction top, making a double security; then when it is put in the outer packages the weight is taken off from this screw top by layers of corrugated paper, and that, put into this outer mailing case, gets tied up and goes nicely by mail.

This has been submitted to the United States Postal Department in the Parcel Post Department and has been approved. This is a nice way for the producer to reach the consumer by mail.

A member—What does it cost?

A member—It will be around fourteen cents apiece I think, complete.

Mr. Bull—Is that 10 or 12 pounds?

A member—That is 12 pounds net weight.

You see, this is in its infancy; we have just tried it out. The members might talk it over and decide whether a 10 or 12 pound would be the better. A 10 pound package seems to be more popular in this part of the country.

Twelve and six pounds are used almost exclusively in Texas and in the southern states; up north they use 5 and 10.

Mr. Miller—That is an excellent package but we can beat that on the price. We can get that from the National for 11 cents.

A member—In this form?

Mr. Miller—Practically the same thing; a square can.

Mr. France—I would like to have some expression from you before I go—I am sorry indeed that the election has gone as it has. I would like to ask this question: Shall we not now plan for next year and boom this convention? Shall we not have some premiums awarded for papers upon certain lines of thought, that different members can compete for, and in this way draw out ideas?

We had in our State convention prizes of $5.00, $4.00, $3.00, $2.00 and $1.00, so as to give several a chance upon certain lines; and this would give us a good program, and when we come here we have the experience of several competing on that one line, and it is left to the vote of the house who is first, second, third, et cetera, or it is left with a committee, as you see fit.

We used to make displays of honey; I would like now to see more of it. If the experiences of the different members could be brought out, I fully believe we would find it profitable in competing as it were.

Mr. Bull—I most heartily endorse that idea.

Mr. Simmons—The only question I would like to ask is whether we would have time for several papers of five or six or seven on a subject, or on several subjects, in the two days that we are here.

Mr. France—In Wisconsin we have been doing that but we have not restricted or limited that; your paper must be read easily within five minutes' time. We cannot grant premiums upon great, lengthy papers.

Mr. Baldridge—I am advised that there is a young lady present who is a bee-keeper and it may be that she has something to say to us that will interest us if you will call upon her.

Pres. Kannenberg—We will be glad to hear from the young lady.

Miss Coppin—I am very glad I have been able to attend this convention. I attended one at Springfield a few years ago and enjoyed it very much. While I have been here I have heard a great many discussions on bee-keeping, and, although this gentleman said I am a bee-keeper, I am a little doubtful; although I am a daughter of a bee-keeper, I am proud to say.

You have been talking bees for two days; I have not anything on bees right now that I can give you, but with your permission I will change the subject. I do not know how many temperance men there are here, but I will give you a reading—"Old Soppy".

Miss Coppin gave a reading which was enjoyed by all.

Pres. Kannenberg—We have another paper here on "Bee-keeping as a Business," by Mr. E. H. Bruner.

A member—I move that we tender the young lady a vote of thanks, by a rising vote—(which was made unanimous).

BEE-KEEPING AS A BUSINESS.

(By E. H. Bruner.)

We hear very often of the busy bee and we are quite liable to think of the bee-keeper as a busy man, but not often is bee-keeping looked upon as a business.

It's true that most of us have taken up bee-keeping as a fad, and often it is a profitable fad at that, but not many of us make it a business.

Webster, in his bit of literature called the Unabridged, says business is that which occupies the time, attention or labor of one as his principal concern.

In other words, business is that about which one busies himself. But even those of us who do not claim bee-keeping as their principal concern get so busy at it at certain times that it would be hard to say just who was the business bee-keeper, who the faddist.

Bee-keeping as a business is essentially a manufacturing or producing business.

Every manufacturing business has to do with two principal problems: First, production; second, distribution.

In order to produce anything one must have:

First. Raw material to make it out of.

Second. Plant or equipment to make it in or with.

Third. Help or labor to do the making.

Fourth. Management to bring the first three together in an effective way.

After your goods are produced, you face the problem of distribution, which involves:

First. Selling, which includes advertising or publicity.

Second. Delivery.

Raw material in bee-keeping, of course, is the nectar in the bloom.

In many maufacturing lines, one locates his factory at some central shipping point and ships in his raw material. In others, he goes to the raw material and ships the product out.

To manufacture lumber, nowadays, one goes where the timber grows. In brick manufacturing, he locates at a clay bank. In bee-keeping as a business, one first finds a location that has the raw material, the nectar in the bloom.

One might locate a sawmill where hazel brush or sumac was the only growth, but he would not be considered a good business man. He might locate a brick making plant where he had materials that would turn out only second or third grade brick, but his ability as a business man might be questioned.

And the business bee-keeper does not long remain in a locality which offers only poor quality or small quantity of nectar.

When the saw mill cuts out it is torn down and moved. If our supply of nectar drops off with the passing of the seasons, we must look for a new location or encourage the growth of nectar bearing bloom—must reforest as it were.

In the days when cattle raising was the principal business of the west, cattle were driven from one range to another as the supply of raw material, that is the pasturage, ran short. Neither are our ranges bounded by fences and the business bee-keeper who has not a range which affords pasture during the whole season should well consider the advisability of moving his bees from one location to another with the coming of different honey flows.

That bee-keeper who covers two or three principal flows in a season is the one who is looking out for his raw material properly, who has this one essential to production in bee-keeping as a business provided for. If he can do this without moving his bees, so much better, but, if he cannot, then moving is essential as a business proposition.

"Plant," or equipment, includes hives, bees, tools, and, in bee-keeping as a business, almost necessarily it would include one or more conveyances, whether horse or auto.

Hives need not necessarily be the highest priced, but must be bought for their serviceability.

"Plant" should include any labor-saving tool that has been tried out and found to be actually profit-paying. This does not mean one should buy every new thing as soon as brought out, but it does mean the necessity of investing in everything that is worth while so soon as its utility has been proven.

As a business proposition "plant" must include perfect combs so far as they may be had by the use of full

sheets of foundation properly put into perfectly made frames.

As to labor or help, conditions vary with different localities.

Probably as a rule the best is the cheapest. Ordinary help is profitable sometimes under a proper, competent foreman, but in bee-keeping without proper superintendence it is usually worse than useless.

Usually help may be had during the late fall, winter and early spring, but it becomes more of a problem during the busy season, therefore as much of the work as possible should be done during off seasons.

If one engages in bee-keeping as a business one probably will not try to do all the work himself. From a business standpoint one should be able to hire help and leave a profit, and certainly if one can't afford to hire help he can't afford to do the work himself. In other words, if the bee-keeper business man's time is worth less than the time of a man he can hire, he had better give up bee-keeping as a business and consider it merely a fad.

Management is usually called "overhead" and means the necessary outlay for overseeing things, for running the business. The cost for management must be kept within bounds. Many businesses fail through too much overhead or management and probably a great many more through too little, but sane business management is an essential to success.

Many of us are already giving our fad the thought and study that makes for successful business management.

In connection with management, usually capital is considered. The money to swing the business is necessary in any business and particularly so in a business that yields only annually at best and in which there are months or even a year and a half at times with little or no income.

Costs for management may be kept down at times by co-operation or consolidation. Some western bee-keepers find it more profitable to co-operate on the production end as well as on the selling end on account of the lower cost and more efficient results.

So much for production in a general way. Now as business is a matter of costs and profits, of figures and percentages, let's see what this means in tangible form.

Assume we're in the business of bee-keeping with raw material, plant, labor and management all provided for. Assume we move 5 colonies to a yard 25 miles out for a flow necessitating eight trips to get off a crop and get ready to move to the next flow, there being three flows in all. Then will our costs figure out for the yard something like this:

RAW MATERIAL:			
Rent	$ 5.00		
Moving one way	25.00		
Eight trips, auto 25 miles out and 25 miles back—50 miles at 10c per mile—$5.00 per trip	40.00		$70.00
PLANT.			
Depreciation 50 hives, $3.00—$150.00—10 per cent 1 year	15.00		
Interest on 50 colonies, $8.00—$400.00—6 per cent 1 year	24.00		
Painting and repairs per year	15.00		
Wintering 50 colonies, including feed	50.00		
Total for year	$104.00		
Only one-third charged this yard			$34.67
LABOR:			
Eight trips, 12½ hours each, 100 hours @ 30c			30.00
MANAGEMENT:			
Salary $1,000.00 per year	$ 1,000.00		
Accounting, miscellaneous	250.00		
Interest on investment in shop and general supplies, $1,000.00 at 6 per cent	60.00	$1310.00	
Half to production		$ 655.00	
If own 500 hives, management expense per colony per year	1.32		
One-third charged this yard—44c per colony			22.00
Total			$156.67
or per colony, say,	3.17		

Thus the cost for producing a crop at this yard would have been per pound:
If crop was 20 lbs. per colony 16c, and 3—19c.
If crop was 30 lbs. per colony. 10c, and 3—13c.
If crop was 40 lbs. per colony. 8c. and 3—11c.

The 3 cents added is for section, foundation, setting up, cleaning, casing, etc., and refers, of course, to comb honey.

If the crop was extracted instead of comb honey and we got 40 lbs. per colony the cost would be, without figuring cost of extracting or tins to put the honey in, 8 cents per lb., and if the crops was 100 lbs. it would have cost, aside from cost of extracting and tins, 3 1-6 cents per lb. Extracting and tins would cost 2 to 4 cents per lb. additional, depending upon circumstances.

Under the head of distribution, the two points to be considered are selling and delivering, and they are so intimately related to each other that it is usually best to consider them together.

One may keep his selling expense down to a 2 cent stamp if he merely wishes to ship his product to a wholesaler or a commission house.

The other extreme in selling is going direct to the consumer and delivering the goods direct to the consumer.

Between these two extremes perhaps lies the best course for most of us. If one can find retail gorcers already equipped with the means for distributing goods we can perhaps put our crop into the hands of the consumer more economically through them than we can in any other way.

If it is certain that we can dispose of our crop to the best advantage through retail grocers, then by all means make use of this legitimate means of distribution.

If one is not in position to solicit business through retail grocers himself, then he can still make use of the services of the commission man.

But before deciding definitely that we want to market our crop through retailers or through wholesalers it would be well perhaps to consider a few facts.

There are millions of people in this country and it is a fact that these millions of people use about one-sixth as much honey per head of population as do the peoples of Europe. Now, mind you, the consumer in Europe has about one-fifth as much money to buy honey with as we have here. Yet they buy six times as much honey as we do per head. On the other hand, it is said that we use several times as much sugar per head as does our European cousin. It is not that we have not a liking for sweets, but it is, instead, that we use the sugar instead of the honey. The sugar is cheaper and less healthful than the honey, that our European cousin buys at a considerably higher cost per pound, even though he has not nearly as much money with which to buy as we have.

Now, whose fault is it that we do not sell more honey to the consumer in this country?

The Singer Sewing Machine company probably maintains the largest and most complete selling organization in the world. Its problem was quite similar to ours. There were millions of people who they thought needed sewing machines. To sell millions of sewing machines it was necessary to convince their customers that they needed sewing machines and they found that direct personal appeal and demonstration was the most practical, therefore most economical and most logical method of distribution for them. Their problem was first to educate the consumer to the need of or desirability of a sewing machine and in particular to the need of a Singer sewing machine. Our problem is first to educate the consumer to the need of the use of honey and then in particular of our own brand of honey.

Another means of educating the public to the use of honey and in particular our brand of honey is through printed publicity through using newspaper or magazine space or by direct appeal by mail. But here again the object is to educate the consumer to the use of honey and especially to the use of our particular brand of honey.

Possibly it might be best to use this direct to the consumer appeal in connection with sales through retail dealers.

But in any case the well managed sales department of any up-to-date business sees to it that the consumer is educated to the use of the goods produced and is educated to ask for that particular concern's make or brand, no matter how the distribution is effected, whether through the wholesaler, through the retailer, or direct to the consumer.

The International Harvester company is an example of very effective work through, and in connection with the retail dealer. Chances are if you want to buy a binder, you will sooner or later have the merits of a binder explained to you personally by a rep-

resentative of the Harvester company, as well as by your local dealer. This may not be practical in quite the same way in the sale of honey through retailers, but one large dealer in honey has this year gone at the sale of honey in this field in a practical and legitimate way through retailers by advertising in local papers, by display in dealers' windows and stores, and by demonstration work of one kind or another.

But we may say that all this costs money. To be sure it does. Mighty little that's desirable in this world today is to be had without pay.

But because there is cost connected with doing a certain thing does not necessarily mean that we eventually pay for it. Advertising or publicity or this educating the consumer to the use of honey is something that the consumer eventually will thank us for (if he gives it consideration at all) and for which the consumer pays.

The Singer Sewing Machine company does not sell a sewing machine for $9.00 which costs them $8.00. The International Harvester company adds enough to the cost of making a binder to cover the expense of the special salesman's call upon you and in addition a profit for the retailer, and in addition to that a profit for themselves and even at that you can afford to buy the binder and pay for having them tell you about it. You would not go back to the old cradle with which to harvest your grain, neither would you let your wife go back to hand sewing alone. Instead you are mighty glad to pay for having been told about these good things.

In Europe, where money is so scarce that it is worth from four to five times as much as it is here, honey retails at 25 to 30 cents per pound in small lots. In this country a low price does not necessarily increase the sale of honey and, in fact, usually it has no bearing at all or little upon the quantity consumed. It costs money to put anything upon the market, no matter whether we sell direct to the consumer by personal solicitation, by mail, or through retailers or wholesalers, and everyone who has a hand in marketing our product must be paid for his services, but it is the consumer, the man who wants the honey and who is glad he can get it at all, that must pay for having it brought to him. These costs are legitimate costs and should be added to the price when the honey finally gets into the hands of the consumer, and those of us who sell honey at retail at wholesale prices, or without leaving sufficient margin for the ordinary marketing of their product, are merely standing in their own light and, worse than that, are doing the most they can to discourage any effort at educating these millions of consumers in this country to the use of honey.

In selling honey, we must bear in mind that, if our honey has cost us something to produce, it is just as surely going to cost the consumer something to get it into his possession, and, since the consumer is willing to pay a fair price, by all means let him do so.

If we wish to go direct to the consumer we must hire a competent salesman. Assuming that one sells 50 pounds of honey per day at 25 cents per pound, his sales would be $12.50. To get such salesmen one must pay, say, 30 per cent commision, or say, $3.75 per day. Supposing this same man, who is worth $3.75 per day, sells honey at 15 cents per pound. He is not likely to sell any more at 15 cents than at 25 cents. If he sells 50 pounds, totaling $7.50, and since you will have to pay him $3.75 to keep him, your selling expense will be 50 per cent instead of 30 per cent. In other words, the higher the price the less it will cost you in percentage to sell your goods.

Worth thinking of, is it not?

Assuming you are selling honey at 25 cents per pound, paying 30 per cent or 7½ cents per pound for selling, you will find it will cost you nearly as much more to deliver if you are covering any very wide field, but, taking 5 cents per pound as a fair cost for delivering, this makes a total of 12½ cents per pound for distributing, leaving you net about 12½ cents per pound for your honey, and without allowing anything for management expense in connection with the distribution.

This selling and delivering or distribution expense is for the consumer to pay and he is paying it on sewing machines; he is paying it on shoes; on clothing; on groceries, on everything else that he buys. Why shouldn't he pay it on honey? There is no reason why he should not.

To get back to the cost for distribution of honey and to compare it with the selling price, if we produce honey at 8½ cents per pound and sell it through wholesalers at 9 cents per pound, we make nothing. If we put it into the hands of the consumer at 12½ cents per pound we will probably lose money because of the extra expense necessary to put it on the market. If we ask 25 cents per pound and go to the expense of educating consumers to the desirability of the use of honey there is a possibility that we may make enough out of it to pay for our trouble and time in marketing the crop. But there is not anything big in it at that.

It is often said that in business one ought to be able to make $5.00 per day profit off of each man employed in production or in selling or distribution.

Will bee-keeping as a business measure up to that standard? I don't know.

Pres. Kannenberg—Has any one else anything to say along this line?

Mr. Bull—I must say that those figures are pretty close to where they belong. It costs money to sell goods as well as it does to produce them. What does the farmer get of the consumer's $1.00?

A member—$.35.

Mr. Bull—I say how much does the farmer get of farm products of the consumer's $1.00; taking farm products for instance, I think it is figured out he gets $.43; quite a bit less than half. Why should not the person that distributes honey get something like that proportion. Farm products are considered a necessity; honey is considered a luxury; therefore it is worth more to put it on the market.

The same way with a Binder or a Sewing Machine, it costs more to sell it than to make it; the same way with an automobile; it costs more money to sell it than to manufacture it.

If we are going to say honey is worth 8 or 10 or 12 cents a pound wholesale and retail it for $.12½ where do we land?

Mr. Burnett—I presume the time for adjournment is growing near, but before we adjourn I think it would be fitting if we should call attention to the program, which has practically been finished by this last paper of Mr. Bruner's.

When I read this paper I thought that the Secretary had called largely on faith in preparing it but while he has assumed perhaps in the case of Mr. Hofman and others that they would be here because he so much desired it—those who have been here have acquitted themselves in an exemplary manner, and I think this is one of the profitable occasions upon which bee-keepers and their associates have convened.

Now, therefore, I move you, sir, that a vote of thanks be tendered our Secretary, largely underpaid in his years of service and other respects—for the service, the pains and great labor that he has expended in preparing this occasion for us.

Motion seconded and carried by a rising vote.

Mr. Dadant—I appreciate your vote of thanks; I have done the best I could. I am sorry that Mr. Pellett and Mr. Hofman and Mr. Baxter could not be here; I could not depend on them. I got a reply from but one or two as to whether they would be here or not; I am glad it has turned out so well.

Pres. Kannenberg—We have a few more questions here.

Mr. Wheeler—I think it is in order as long as our President is going out of office to have a rising vote of thanks for the work he has done. I make a motion that a rising vote of thanks be given for what he has done.

Motion seconded and carried.

Pres. Kannenberg—Thank you, brothers, for the honor, and really in fact I have not done very much but I did as good as I could.

Pres. Kannenberg—We will have a few more questions.

Mr. Burnett—Have the officers been elected for the ensuing year?

Mr. Dadant—Yes—Mr. N. E. France, President; Mr. E. H. Bruner, Secretary-Treasurer.

Question—What is the best way to liquefy honey?

A member—Eat it.

Mr. Dadant—I think Mr. Miller can give us something that he and Mr. Bull and several others have tried.

Mr. Miller—Whatever I have to say will have to be brief; my train goes in a few minutes.

I have constructed an oven to liquefy honey by means of dry heat, using gas where we can get it. The oven holds

60 lb. cans about 3 ft. long, a little over 2 ft. wide, lined with asbestos, and has passing through lengthwise four pieces of gas pipe 1 inch to support the cans. It has two gas burners below for furnishing the heat; at the top there is a cover that fits tightly and in the cover there is an opening with cork in it; and a thermometer through this cork. We can regulate the thermometer. The gas has to be turned very low in order to keep the heat down to where it should be; turn it about as low as we can to keep the gas burning. It takes about 12 hours to liquefy six cans of honey. I have found this difficulty; cans get hotter at the top than at the bottom. I am testing this out. I have taken a flat piece of sheet iron and put it over the supports that held the can and set 60 lb. cans on this piece of sheet iron; that enables the flame to heat this flat piece of sheet iron and the bottom of can so that the bottom will heat possibly faster than the top.

I have been using this for two years. Mr. Bull has a similar arrangement but his is much larger. He can tell you more about it than I can.

Mr. Bull—I would like to know the depth of yours.

Mr. Miller—I do not remember the exact dimensions; I think the distance between the bottom of the can and the bottom of the heater is about 10 inches. His plan was to invert the cans and let the honey run out but I find it does not completely liquefy; you have to put the cans right side up and pour out afterwards.

Mr. Bull—I use about the same thing; I made a tank to start with to hold 6 or 8 cans, letting the honey run out as fast as melted, but I did not try it long.

I put the tank on the floor and put the honey in right side up until they were melted. If I got more honey than would melt I used a larger tank.

My tank is 3 feet wide, 2 feet deep and 10 feet long. My tank is too shallow to overcome that, and I cut out the center of bottom about 14 inches wide and set the tank on 2 by 10's set edgewise; 2 by 10—10 inches high at one end and 8 at the other; the tank cut out inside at bottom.

The whole tank is a little bit slanting. My tank will hold 11 cans on each side; if you are crowded you can put 5 cans in the center; I have two burners about 2½ feet from each end.

I have another outfit that is a little different; I have three burners in that; a tank 8 feet long, 2½ feet wide, 2½ feet deep.

The trouble is if you have your tank there and heat at the bottom, the top of your cans will get too hot for the bottom of the cans.

I never tried out the plan of setting the cans on a sheet of metal as he has suggested, but I will watch that carefully. The top of my tank is galvanized iron cover; I do not use any packing to conserve the heat. The honey is generally put up in the winter time and it makes a room comfortable to work in.

I have an extra use for the top of that cover. If you wash a friction top can it is practically impossible to take the water out except to dry them out. We set our cans on top of that cover after washing and let the water dry out.

Mr. Burnett—What thermometer have you in there?

Mr. Bull—I do not use any thermometer; I aim to have the cans as hot as I can hold them without burning my hands; 125 to 130 degrees, I believe.

When you shut your burners off your heat is stopped right then.

You can use those same cans over and over again for storage.

I can take a can that has had honey in the second time and you cannot tell it from the one that has had honey in the first time. When honey granulates it expands. I never put 60 pounds of honey in a square can; I stop at 55; that leaves sufficient room when I take that cap off and empty it without that honey going over everything.

The honey after it is melted is run through a 10-cent cheesecloth and vertical strainer (described in the bee papers two or three years ago)—a wire basket 10 or 11 inches in diameter and a foot deep; make a circle in the cheesecloth and set inside of that and it gives you a vertical strainer; the honey is poured through that strainer and it takes out all particles of wax; more or less pollen will come up there when the honey is heated.

The honey is left standing usually about 12 hours. When you put the honey into cans a little scum will come on top after it is cool, which is

air bubbles, I think. Let that honey cool down to probably blood heat before you fill those cans and you will not have that trouble.

Have your tank set up 18 inches from the floor on a stand exactly underneath. I take an ordinary wrench and screw the cap down tight and they are absolutely air tight; the cans will not burst.

You can have that can full of granulated honey and can melt that honey as hot as you can hold those cans and it will not burst.

Mr. Burnett—At times have you discolored your honey?

Mr. Bull—Not unless you heat it too high.

Mr. Burnett—When you have an iron plate, do you have the honey immediately under that plate and have the tank raised on that?

Mr. Bull—The can is, I think, about 10½ inches across; that leaves you a foot space through the center of the tank.

Mr. Burnett—He does not allow the heat to touch his cans directly.

Mr. Bull—That would not do at all, no. I can regulate those burners and the honey will be, when I come back, within 2 degrees of where I want it; I start slow heat.

Mr. Bull—The heat is set so that it will start and finish at the same heat. If you are in a hurry you can turn your heat high to start with and gradually reduce the flame. I find I can get the same results by running one straight heat from start to finish.

Question—Why is the McEvoy method recommended in preference to the Baldridge treatment of foul brood? I would like to hear from those who have used both methods.

Mr. Kildow—I can see no difference only this: Wth the McEvoy treatment, you are done with it in a few minutes—as a rule; while with the Baldridge plan it takes about 21 days. One treatment is just as good as the other; I see only the difference in time; I have tried both of them.

Mr. Bull—Is not one difficulty with the Baldridge treatment — taking chances on the bees getting through if you happen to leave a space? One advantage of the McEvoy treatment over the others, if you have several yards, you can keep everything in one place. As fast as you treat a colony, take the colony that is healthy away. Do not give them a chance to rob. I do not care how careful you are or how good a hive you have, you are going to leave a hole to crawl through.

Mr. Kildow—In the Baldridge plan if you have hives in good order you save practically all the brood, so that helps to balance the matter of time.

Mr. Bull—I might say I save that brood—when I shake several colonies and stack the brood up and let it hatch.

Whenever you shake a colony of bees out of there into a new hive in a yard, that has the disease, take the colony away.

Mr. Kildow—Everybody cannot take theirs away.

Mr Bull—That is true but if you have any amount of bees you have to have some outyards.

Question—Which disease is the most to be feared, European or American?

Pres. Kannenberg—I think that was pretty well thrashed out by Mr. France when he spoke of foul brood.

Mr. Hawkins—I would like to ask a question. If any one has had experience with European foul brood where you re-queen to cure it, if the queen taken from the diseased colony is put in a colony that is free from disease, will it appear by that transmission?

Mr. Dadant—We had a little experience in one yard this year with European. It was the first we had and we thought we would try experiments and that was one of the experiments we tried.

Mr. Kildow said we were taking a long chance and we tried about six queens, and they were Italian queens. We took them from colonies that had the disease bad and put them in either queenless colonies or colonies that had killed the queen a short time before, and in every case the colonies developed European foul brood, and not one of the queens we took from one of our yards when there was no disease of any kind, either European or American, and put it in the queenless colony did that colony develop foul brood. We killed her as soon as we found it developed and put in another queen and the disease disappeared. In about six trials it developed in each case.

A member—I would like to ask Mr. Kildow if it is necessary to re-queen when treating for American foul brood.

Mr. Kildow—No; not necessary, unless you happen to have a queen you don't like.

The Italian bee sems to be the better house-keeper; seems to clean up better than the common brown bee; that is the only difference that I can see.

The Italian seems to be more immune than the common bee.

Mr. Coppin—I do not see any difference in regard to the race of bees. If foul brood is in the yard my opinion is it will get any of them, whether Italian, Carniolan or black bees.

I have had it among them all (both European and American) and I do not see that the Italian stays clear of it any quicker than the others. To get rid of the disease, either the European or the American, they have to be treated.

Question—Which is the best and the quickest way to increase your apiary?

Mr. Coppin—I would say to have a good honey flow.

Mr. Bruner—Get your bees from the South.

Mr. Burnett—I move we adjourn sine die.

Pres. Kannenberg—Is there a second to that motion?

A member—Second the motion.

Pres. Kannenberg — The meeting stands adjourned.

At 4:30 p. m. the Convention adjourned to meet at the call of the Executive Committee.

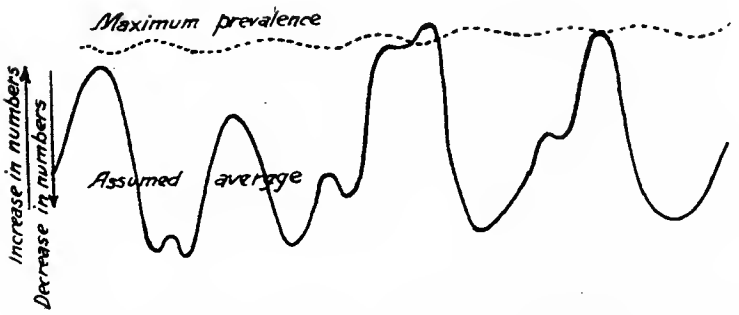


FIGURE 1—Hypothetical curve representing the fluctuations in wild bee life (lower curve) as compared with the maximum prevalence desirable in the orchard during bloom (upper curve),

[Author's illustration—Courtesy of McMillan Co.]

FIGURE 2—Bees in Small Orchard. These four colonies are the product of one new swarm, hived in June. It prepared to swarm in July; was quartered and made four good colonies for fall. [Courtesy Doubleday, Page Co.]

BY-LAWS OF THE NATIONAL BEE-KEEPERS' ASSOCIATION,

As Adopted at Denver, Colo., February, 1915.

Article I.—Name.

Section 1. The name of this organization shall be the National Bee-Keepers' Association.

Article II.—Objects.

Section 1. The objects of this Association shall be to promote the interests of bee-keeping by the dissemination of useful and scientific knowledge concerning the care of Honey Bees and their products; the care of and marketing of Hive products; to promote social relations between those engaged in bee-keeping; to create and maintain greater public interest in bee-keeping and its importance in relation to agriculture and horticulture, and to advance the welfare of the members by all means not inconsistent with the law of the land and the By-Laws of the Association.

Article III—Powers.

Sec. 1. The Association shall have power:

(a) To have and keep a corporate seal.

(b) To hold under its corporate name such property as shall be deemed necessary and useful in carrying out the purposes of its organization.

(c) To print, publish and distribute such magazines, papers or other publications or periodicals as may be deemed essential to the purposes of the Association.

(d) To promote lecture courses, field meetings and other educational means and methods in the science of bee-keeping as shall be deemed best calculated to promote the welfare of the Association and its members.

(e) To sell, lease or otherwise dispose of any property of the Association no longer needed in carrying on its purposes.

Article IV—Membership.

Section 1. Membership shall be limited to persons who are in sympathy with the purposes of this Association.

Sec. 2. All persons engaged in bee-keeping or kindred occupations, either for profit or pleasure, may become members of this Association by making application in writing therefor to the Secretary of the Association, and receiving a majority of votes of the members present at any regular or special meeting.

Sec. 3. Any Association or Society heretofore or hereafter organized for purposes in harmony with the objects of this Association may affiliate with this Association by adopting resolutions therefor and making application to the Secretary of this Association and receiving a majority of the votes of the members present at any regular or special meeting, whereupon the members of said Affiliated Organization become members of this Association.

Sec. 4. Each Affiliated Association shall be entitled to elect one delegate to attend the National meeting, who shall present proper credentials, and, if correct, such delegate shall be entitled to one vote for every fifty members or fraction thereof in this local Association.

Sec. 5. A membership fee of one dollar and fifty cents per annum shall be paid by each member of the Association, whether such member becomes so by affiliation of the organization of which he is a member, or otherwise.

Sec. 6. Membership in this Association shall cease upon failure to pay the annual fees, or to conform with the provisions of the Charter and By-Laws of this Association.

Article V—Officers.

Section 1. The officers of this Association shall be a President, Vice-President and Secretary-Treasurer, who shall hold their respective offices for one year, or until their successors

are elected and qualified, and a Board of five Directors, who shall hold their offices for a period of two years or until their successors are elected and qualified. The Officers and Directors shall be elected at the Annual Meeting in each year; provided, That two Directors shall be elected in odd years and three Directors shall be elected in even years.

Article VI—Duties of Officers.

Section 1. The duties of the President shall be to preside at all regular and special meetings of the Association and act as Chairman of the Board of Directors.

Sec. 2. The duties of the Vice-President shall be to preside in the absence of the President.

Sec. 3. The duties of the Secretary-Treasurer shall be to keep a record of the proceedings of the meetings of the Association and its Board of Directors, maintain a list of all members of the Association, with their addresses, collect, receipt and care for the membership dues and all funds of the Association, unless otherwise ordered by the Directors, place such funds in such depository as may be provided by the Directors and shall pay out such money in the way and manner authorized by the Board of Directors and perform such other duties as required of him by the laws governing the Association.

Sec. 4. The duties of the Board of Directors shall be to have general supervision of the affairs of the Association, fix the compensation of its various officers and employees, authorize the making of contracts of the Association, direct the disbursement of the funds, approve all bills against the Association and perform such other duties as may from time to time be imposed upon them by the By-Laws of the Association.

Article VII—Committees.

Section 1. The standing committees of this Association shall consist of an Executive Committee, consisting of the President, Vice-President and Secretary-Treasurer, and such other committees as may from time to time be created by By-Law or Resolution.

Sec. 2. The executive committee shall have charge of all routine and executive work which may require attention in the interim between the meetings of the Board of Directors.

Article VIII—Meetings.

Section 1. The Annual Meeting of the Association shall be held during the month of February of each year, the exact date to be determined by the Executive Committee and the Board of Directors. The Annual Meetings shall be composed of members of the Association in good standing and duly accredited delegates, selected by the Affiliated Associations.

Sec. 2. Special Meetings of the Association may be called at any time by the Executive Committee.

Sec. 3. The Regular Meetings of the Board of Directors shall be held immediately following the Annual Meetings, and also on ————————

Sec. 4. Special meetings of the Board of Directors may be called at any time by the President of the Association.

Article IX—Funds.

Section 1. There shall be created a fund to be known as the General Fund, and also a fund to be known as the Subscription Fund. Fifty cents of the membership fee, herein provided, shall go into the General Fund and one dollar into the Subscription Fund.

Sec. 2. The expenses of carrying on the business of the Association, including the compensation of the various officers and other expenses not otherwise provided for, shall be paid out of the General Fund. The Subscription Fund, and all surplus moneys remaining after the necessary expenses of the Association have been paid, shall be expended as the Association shall direct, in the circulation of literature in relation to bee-keeping, to provide lecture courses and such other educational means and methods as may be deemed essential to the interest of the Association and its members.

Article X—Amendments.

Section 1. These By-Laws may be amended at any regular meeting of the Association, by a two-thirds vote of the members present, provided, however, that at least ninety days' notice has been given to all Affiliated Associations of the proposed amendment.

DR. BURTON N. GATES,
President, 1915.
Amherst, Mass.

WESLEY FOSTER,
Secretary-Treasurer, 1915.
Boulder, Colo.

MINUTES OF THE

NATIONAL BEE-KEEPERS' ASSOCIATION,

Denver, Colo., February, 1915.

Opening Session, February 16th.

The National Bee-Keepers' Association convention convened in Denver on February 16, 1915, the President, Dr. Burton N. Gates, calling the meeting to order at 9:30 A. M.

The following committees were appointed:

CREDENTIALS: E. J. Baxter, F. E. Millen, Frank C. Pellett.

RESOLUTIONS: Prof. Francis Jager, D. C. Polhemus, George W. Williams.

Special committee of one on Program: Emil J. Baxter.

Invitations were read inviting the next annual meeting of the Association to be held in the following cities: Buffalo, N. Y.; New Orleans, La.; and a resolution presented by Dr. Gates inviting the Association to Springfield, Mass. The matter was referred to the Committee on Resolutions.

The Credential Committee presented their preliminary report (See copy of committee reports).

Moved and carried that a mimeograph copy be made of the official delegate list and copies be distributed for the different motions.

Moved and carried that the Chair appoint an Assistant Secretary to assist in taking the proceedings of the

meetings. The Chair appointed George Nichols, of Montrose, Colo.

The meeting adjourned at 12:20 P. M.

AFTERNOON SESSION, FEBRUARY 16, 1915.

The delegate session called to order at 1:00 P. M.

The supplementary report of the Credentials Committee was given by E. J. Baxter. (See copy of committee reports.)

The President and Treasurer read their reports, which were accepted as read.

It was ruled by the Chair that no delegate can transfer his proxy.

Moved and carried that Dr. Phillips be allowed to transfer his delegate appointment to Harry Lathrop in order that Mr. Lathrop might represent his own Wisconsin State Association.

Moved and carried that all papers on marketing honey be presented at one session.

Moved and carried that Dr. Gates's paper be made a special order of business for the evening meeting.

The Association asked that the Secretary-Treasurer's report be given. Clement L. Arthur's report was read. Moved and carried that the report be received and placed on file.

J. H. Stoneman, Wesley Foster and E. D. Townsend were appointed as an Auditing Committee.

The Editor's report was called for.

Summary report was required, which was read by G. W. Williams, Mr. Townsend being absent. Moved and carried that the report be received and referred to the Auditing Committee.

Mr. Townsend's paper on "The Bee-Keeper's Review" was read by Mr. Williams. Moved and carried that it be received and referred to the Auditing Committee.

Report of the Committee on the Standardization and Color of Honey, appointed at Cincinnati in 1913, was given by Dr. Phillips. Moved and carried that the report be accepted and the committee continued.

Dr. Burton N. Gates reported for the Committee on the Standardization of Bee Supplies. Moved and carried that the report be accepted and the committee continued.

The President recommended that the fiscal year close on January 31st. Moved and carried that the President's recommendation be accepted, and February 1st was designated as the beginning of the fiscal year.

PUBLIC SESSION, 3:45 P. M.

Mayor Perkins of the city of Denver gave the address of welcome and granted the liberty of the city. Dr. Bohrer of Kansas responded to Mayor Perkins.

"Europe's Greatest Bee-Keepers"—Thomas Cowan and Edward Berstrand.

The paper of Mr. C. P. Dadant was read by Mr. L. C. Dadant.

The paper on "The Educational Value of Bee-Keepers' Associations," by Mr. A. W. Yates, was read by Mr. Baxter.

The paper on "Selling Extracted Honey" by Elmer Hutchison was read by Mr. Williams. The paper was discussed by A. A. Lyons, Harry Lathrop, J. H. Stoneman and others.

The paper on "Conditions in Cuba" by D. W. Millar was read by Dr. Phillips.

Open session closed at 4:00 P. M. and delegate session was called to order by the President.

DELEGATE SESSION.

The matter of incorporation was taken up and the proposed articles of incorporation were read.

Moved by Frank C. Pellett and carried: That we approve the action of President Gates in completing the incorporation of the National Bee-Keepers' Association in accordance with instructions of delegates at the St. Louis convention.

Adjournment.

EVENING SESSION, FEBRUARY 16, 1915.

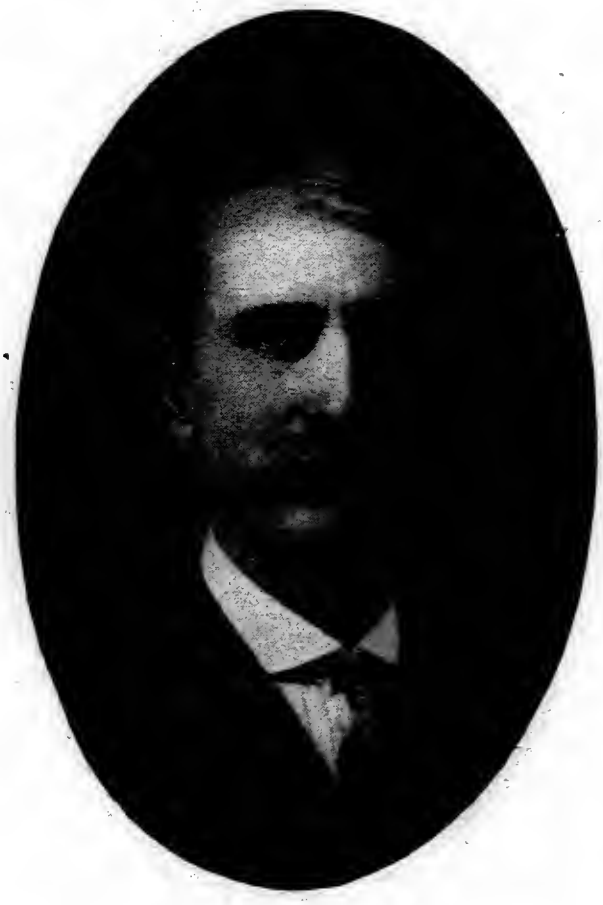
An invitation was read from the Colorado Honey Producers' Association inviting the National Bee-Keepers' Association to a banquet on Wednesday evening, the 17th, at 6 o'clock.

Mr. E. R. Root gave a talk on "Migratory Bee-Keeping." Mr. Hersperger gave his experience in moving bees from Ordway to southern Arkansas. Mr. Lyons and Mr. Matthews spoke on moving bees.

An auto trip to see the Colorado foothills was announced by the Committee on Local Arrangements.

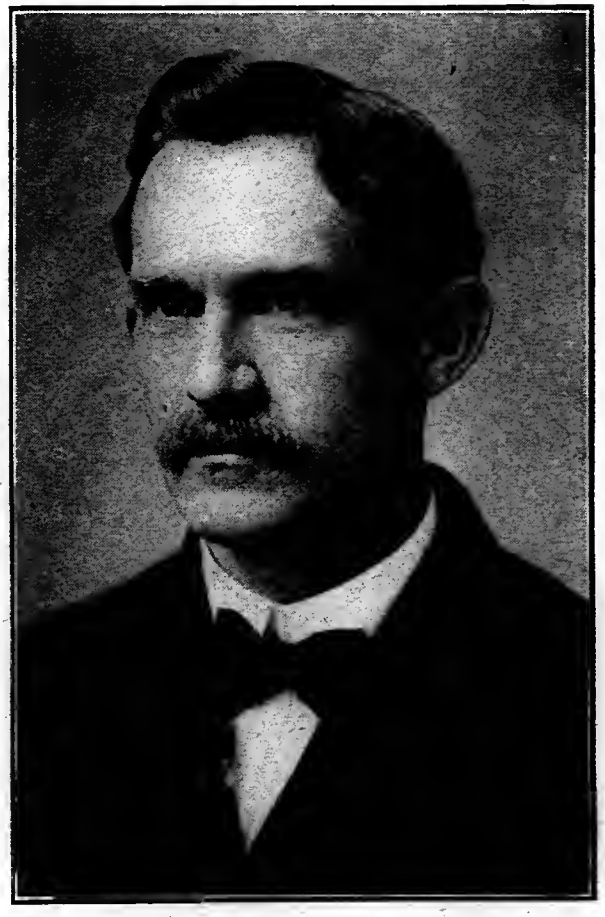
The meeting then adjourned.

E. D. TOWNSEND,
Holdover.



GEO. W. WILLIAMS.
Holdover.

J. H. STONEMAN,
Newly elected.



E. G. CARR.
Newly elected.

DIRECTORS NATIONAL ASSOCIATION.

Also EMIL J. BAXTER (See picture on page 31). Newly elected.

DELEGATE SESSION, FEBRUARY 17, 1915, 8:45 A. M.

The meeting was called to order by Dr. Gates.

Debate was had on matter of incorporation of the Association.

Moved by Dr. Phillips and carried, after being discussed by Frank G. Pellett, That the delegates' meeting adjourn at midnight on February 17th, unless, by unanimous consent, it is decided to adjourn sooner.

Moved by Dr. Phillips and carried, after being seconded by Frank C. Pellett, That debate on each question be limited to five minutes and that no delegate may speak more than twice and not more than five minutes in all.

Mr. Williams proposed for Mr. Townsend to take over "The Review" without conditions if the debt be liquidated. He would assume the $381.14, the only condition being that "The Review" remain the official organ.

Mr. Foster presented the following proposition: "It is proposed that I, with Mr. Polhemus and others, will assume the indebtedness of "The Review" if the Association will turn it over to us; and continue it as the official organ."

Moved by Dr. Phillips and carried: That the National Bee-Keepers' Association make "The Bee-Keepers' Review" the official organ of the Association, subject to the conditions that at any time the directors may discontinue this arrangement if the standard of the publication is not sufficiently high, or provided that, if any material appears therein which is not in accord with the National Bee-Keepers' Association, the National Bee-Keepers' Association is in no way financially obligated.

Moved by Frank C. Pellett and carried to accept the proposition of Mr. Foster to take over "The Review" and assume the $500.00 debt to Mr. Tyrrell. This to be full consideration of purchase price.

Ten minutes was granted Mr. Williams to present matter pertaining to incorporation papers.

PUBLIC SESSION, 10:00 A. M.

The paper, "Agricultural College Bee-Keeping," by Mr. Millen, was read by himself. A general discussion followed.

The paper, "A Plea for Better Bees and Queens," by J. Smith, was read by F. C. Pellett. Discussion followed, Messrs. Collins, Root, Phillips, Howe, Pellett, Jager and others taking part.

The paper by Prof. Wilmon Newell was read by Dr. Gates.

Mr. J. L. Peabody spoke on the development of the honey extractor, and gave some of his reminiscences of early bee-keeping in Denver. Mr. Moon, another old bee-keeper, gave some of his experiences.

The paper, "Autumn Mating to Control Inheritance in Honey Bees," by Prof. F. W. L. Sladen was read by Mr. Millen. General discussion followed for fifteen minutes, when the meeting adjourned to meet at 2:00 P. M.

PUBLIC SESSION, 2:00 P. M.

The paper, "Honey Publicity," by George Williams was read by himself. Considerable discussion followed, Dr. Gates, Dr. Bohrer, Mr. Root, Mr. Colins and others taking part.

Musical selections were rendered by Mrs. Wesley Foster and Mr. E. A. Knemeier.

The paper, "Marketing Honey," by John C. Bull was read by himself.

The paper, "Co-operation," by Frank Rauchfuss was read by himself.

The paper, "Co-operation versus Competition in State Associations," by J. H. Stoneman was read by himself.

The paper, "The Marketing Question," by Harry Lathrop was read by himself.

The paper, "The Development of the Honey Market," by Dr. Phillips was read by himself.

The paper, "Co-operation Among Bee-Keepers," by J. W. Stine was read.

Discussions were limited to three minutes, Messrs. Baxter, Pence, Crane, Collins, Porter, Bohrer, Henthorne, Root, Rauchfuss and others taking part.

The paper, "Marketing Honey," by Edward G. Brown was read by Dr. Phillips.

The paper, "Breeding Bees," by G. B. Howe was read by E. R. Root.

EVENING SESSION, FEBRUARY 17, 1915.

The paper, "Straining and Clarifying Honey," by H. H. Root was read.

The paper, "The Advertising Value of Apiarian Exhibits at Fairs," by George W. York was read.

(No further proceedings of the evening meeting of February 17th available.)

DELEGATE SESSION, FEBRUARY 18, 1915, 8:00 A. M.

Meeting called to order by Vice-President Frank C. Pellett.

Discussion and debate were indulged by Williams, Phillips and others on incorporation and other matters.

Motion by Dr. Phillips and carried: That the delegates remain in continuous session until midnight February 18th, unless adjournment is made sooner by unanimous consent.

Moved by Dr. Phillips and carried: That debate be limited to five minutes on each subject.

Moved by Mr. Millen and carried: That the transaction of business be deferred until the return of Dr. Gates.

Dr. Gates in the chair.

The Secretary was instructed to read the proposed by-laws. Mr. Baxter refused to sign and it was deemed unnecessary.

Mr. Williams read the following motion drafted by Frank C. Pellett: That the proposed by-laws be adopted as read. Moved by Frank C. Pellett and carried that the above motion be adopted.

Moved by Frank C. Pellett and carried to ballot for the adoption of the Constitution as a whole.

Moved by Mr. Jager and carried to make it a matter of official record that a copy of the by-laws, present or available, be placed on file with the President of the Association.

Moved by Mr. Baxter and carried that a recess be taken.

Moved by Dr. Bohrer and seconded that the amount of indebtedness be given by the Secretary and be assumed. Motion withdrawn.

Dr. Phillips took the floor and remarked that they had reached the point where they would now have to disband or re-organize.

Mr. Baxter presented the following resolution:

Whereas, The National Bee-Keepers' Association, a voluntary organization, proposes to disband; and

Whereas, The members of said organization have applied for membership in this Association; therefore, be it

Resolved, That the members of the voluntary organization and the same are hereby declared to be members of this Association and entitled to the rights and privileges thereof.

Moved by Dr. Phillips and carried that the delegates withdraw to the back room. The Chair appointed Mr. N. L. Henthorne to conduct the public session.

DELEGATE SESSION, 11:30 A. M.

Mr. E. J. Baxter nominated Dr. Gates for President of the Association. Dr. Gates asked that another nominee be considered and Mr. Foster placed the nomination of F. C. Pellett.

Moved by Mr. Baxter and carried, that the Secretary cast a unanimous ballot for Dr. Gates.

Mr. F. C. Pellett nominated for Vice-President. Moved and carried that the Secretary be instructed to cast a unanimous ballot for Mr. Pellett.

Mr. Wesley Foster and Mr. G. W. Williams nominated for Secretary-Treasurer. Moved by Mr. Williams and granted by unanimous consent that the ballots be not counted and that the Secretary cast a unanimous vote for Mr. Foster for Secretary-Treasurer for the ensuing year.

Mr. Williams asked as a matter of formality to accept the proposition of the members of the dissolved National Bee-Keepers' Association, unincorporated, to become members of the National Bee-Keepers' Association, incorporated, in conformity with the provisions of its corporation.

Moved by Mr. Pellett, seconded by Mr. Baxter, and carried by a rising vote, that the appreciation of the Association for services rendered be extended to Mr. Williams.

The election of three Directors was the next order of business.

Moved and carried that the Secretary cast a unanimous ballot for Mr. Townsend for Director.

E. J. Baxter, J. H. Stoneman, Francis Jager and Dr. E. F. Phillips nominated for Directors. Mr. Jager and Dr. Phillips withdrew. Mr. Baxter and Mr. Stoneman elected.

The following resolution, presented by Dr. Phillips, was adopted:

Whereas, Mr. E. D. Townsend has served the National Bee-Keepers' Association faithfully as Editor of the Official organ ("The Bee-Keepers' Review") and as Director;

Whereas, There has not been a unanimous opinion as to the policies of the Association and as to the desir-

ability of the continuation of "The Review,"

Resolved, That the delegates desire to explain to Mr. Townsend that any criticism which may have been made was made in belief in his absolute integrity, and they further desire that he understand that they have not failed to value his services, nor have they questioned his faithfulness as an official of the National Bee-Keepers' Association.

Resolved, That the Directors express to Mr. Townsend their regret that he could not be present.

Mr. Millen gave Mr. Townsend's view on the subject of membership fees and asked that "The Review" be allowed to be sent to members and those not members and that the fees be $1.50 instead of $2.00. Moved by Mr. Millen and carried to amend Section 5 by making the annual fees $1.50, of which 50 cents should be applied to the general fund and $1.00 be applied to the subscription fund.

The following resolution, presented by Dr. Phillips, was adopted:

Whereas, It may be that certain details have been overlooked in the reorganization of the National Bee-Keepers' Association, or have been acted upon in some way not in accord with the laws of Illinois under which the Association was incorporated.

Resolved, That the delegates in session authorize the Executive Committee so to rectify or change any such actions that they will be legal and to conform, as nearly as possible, with the actions of the delegates in session.

Moved by Mr. Jager and carried, to thank the old officers for the performance of their duties during the incumbency of office.

The Constitution of the old Association was read by Mr. Williams.

The Chair made the following ruling, which was sustained: That the National Bee-Keepers' Association, unincorporated, has duly petitioned the National Bee-Keepers' Association, incorporated, for full membership, and in due time the National Bee-Keepers' Association, unincorporated, will be duly recognized.

DR. PHILLIPS PRESIDING AT 7:00 P. M.

Moved and carried that the First National Bank of Boulder, Colorado, be designated as the depository of the National Bee-Keepers' Association, but with the consent of the Board of Directors.

Prof. Jager reported for the Resolutions Committee (See copy of committee reports).

In regard to the importation of denatured sugar free of duty for bee feeding, Prof. Jager explained the Austrian method. He further emphasized the need for action to secure the same in this country. Discussion followed.

Moved by Dr. Phillips and carried, to strike out the denatured sugar clause and refer the matter to the Executive Committee.

Moved and carried that the report of the Resolution Committee be adopted with the above exception.

Moved and carried that the Executive Committee ascertain the deaths of prominent bee-men and add proper resolutions to the body of the resolutions already adopted.

Dr. Phillips opened the discussion of the importation of honey. Mr. Root and Mr. Rauchfuss spoke on the large importations of dark grade honey into the United States.

Mr. Williams read the following resolution, endorsed by fifteen bee-keepers owning 6,000 colonies of bees:

Whereas, The honey market is in an unsatisfactory condition, and it is desirable that every effort should be employed to encourage the further use of honey in every legitimate way.

Therefore, Be It Resolved, That the Directors be instructed to take such measures to encourage the publicity of honey and use of the same as they find proper within the financial limits of the Association.

Moved by Mr. Williams, seconded by Mr. Phillips, and carried, that the above resolution be adopted.

Moved by Dr. Phillips and carried, that the former President's report be referred to the publishers of "The Review" for publication.

Moved by Mr. Williams and carried, that the Secretary secure the records and papers of former years.

Effort was made by the Chair to offer opportunity to clear up any obstructions, or call forth suggestions for the future.

Moved by Dr. Phillips and carried, that all and any criticism of any action of the old officers be stricken from the records and that acknowledgment of

error be made in the meeting, and all charges against any officer or delegate be withdrawn.

Moved and carried that the papers on the marketing of honey read at the National Bee-Keepers' Association convention be published in a special issue of "The Bee-Keepers' Review."

Discussion of exhibits at the fairs.

The need of a score card was brought out and discussed by Dr. Phillips. Moved by Dr. Phillips and seconded by Mr. Jager that the Chair appoint a committee, with Mr. Yates as Chairman, to study the score cards for fairs. Mr. Rauchfuss spoke on the need of a score card and the benefits from honey displays. Motion carried.

Dr. Phillips spoke on the Agricultural Extension work being done by the United States government, and of his plan of using the educational features to educate the County Advisors.

Moved by Prof. Jager, amended by Mr. Baxter, and carried, to have a good bee-keeper represent the National Association at the Southern & Industrial Congress.

Report of the Committee on Local Arrangements was read and adopted.

The following resolution was adopted:

Whereas, The spraying of orchards while clover crops in said orchards are in bloom is a menace to the industry of honey production, and has in the past destroyed or weakened thousands of colonies of bees in the commercial fruit districts of Colorado.

Resolved, That we, the National Bee-Keeprs' Association, in convention assembled, urge the passage of Senate Bill No. 77 now pending in the Colorado General Assembly.

Moved and carried that the final disposal of "The Bee-Keepers' Review" be left in the hands of the Executive Committee of the National Bee-Keepers' Association.

Adjournment at 10:00 P. M.

PUBLIC SESSION, FEBRUARY 18, 1915, 1:30 P. M.

The paper, "Blessings From the Net-Weight Law," by Allen Lathane, was read.

The paper, "The Pollination of Fruit Bloom," by John H. Lovell, was read by Ward Foster.

The paper, "A Glimpse at Florida Bee-Keeping," by Prof. Edwin G. Baldwin, was read by Ward Foster.

The paper, "The Best Methods of Increase," by A. C. Allen, was read by N. L. Henthorne.

The paper, "Changed Conditions," by J. E. Crane, was read.

The paper, "Opportunities and the Farmer Bee-Keeper," by James B. Merwin was read.

The paper, "Status of Bee-Keeping in South Carolina," by Prof. A. F. Conradi, was read.

Supplementary Report of the Credentials Committee.

We, your Committee on Credentials of the National Bee-Keepers' Association, do hereby certify in this, our supplementary report, that we have examined all the credentials of delegates thus far presented to us, and we find, in the absence of official lists of membership and the difficult means at hand in determining membership, that the following delegates are entitled to seats and the number of votes set opposite their names:

State.	Delegate.		Vote.
Tennessee	George W. Williams,	seated	3
Iowa	Frank C. Pellett,	"	3
Washington	Wesley Foster,	"	2
Montana	Percy Kolb	"	1
Indiana	J. C. Bull,	"	3
New Mexico	Wesley Foster,	"	1
Idaho	J. H. Stoneman,	"	4
C. N. Western	J. C. Bull,	"	1
N. Michigan	F. E. Millen,	"	1
Kansas	Dr. Bohrer,	"	1
Michigan	F. E. Millen,	"	2
Illinois	E. J. Baxter,	"	5
New Jersey	Dr. E. F. Phillips,	"	2
H. H. & F.	Dr. B. N. Gates,	"	1
Worcester, Mass.	Dr. B. N. Gates,	"	2
Ad. New York	Dr. B. N. Gates,	"	2

State.	Delegate.		Vote.
Uintah, Utah	D. H. Hillman,	"	1
Missouri	M. E. Darby,	"	2
Idaho and Oregon	W. L. Porter,	"	1
Minnesota	Francis Jager,	"	3
Wisconsin	Harry Lathrop,	"	1
Colorado	D. C. Polhemus,	"	2

E. J. BAXTER,
FRANK C. PELLETT,
F. E. MILLEN,
Committee.

Report of Auditing Committee.

We, the Auditing Committee, having gone over the accounts as given us, find an error of one ($1.00) dollar in the itemized disbursements. The total disbursements are shown to be $2,-788.86, whereas we find it to be $2.789.86.

This leaves a balance in the treasury of $17.63, instead of $18.63, as given in the Secretary-Treasurer's report.

J. H. STONEMAN,
J. C. BULL,
WESLEY FOSTER,
Committee.

Report of Committee on Local Arrangements.

We, your Committee on Local Arrangements, wish to report that, through the courtesy of the Convention League, the Tramway Auditorium was secured for the public sessions of the convention for the sum of $60, forty dollars of the amount being contributed by the Convention League and twenty dollars by the Entertainment Fund of the Local Committee.

The Colorado Honey Producers' Association has very generously provided the banquet, entailing an expense exceeding $75.00.

The Colorado Honey Producers' Association, The C. S. Morey Mercantile Company, The G. B. Lewis Company, Dadant & Sons and the American Can Company have assured the success of the exhibit features.

Your Local Committee is indebted to Mr. L. F. Jouno, Mr. Walter Jouno, Mr. Fred Wick and Mr. Herman Rauchfuss for the complimentary use of their automobiles to bring visitors fro mthe Union Station to the convention headquarters.

The Local Committee has raised the amount of $85.95 as an entertainment fund from thirty-nine contributors, itemized as follows:

A. E. Jouno	$ 1.00
Walter Jouno	2.00
L. F. Jouno	5.00
Harry Ingalls	1.00
R. W. Ensley	1.00
S. C. Rising	1.00
C. Steinson	1.00
A. C. Van Galden	2.00
J. R. Miller	4.00
A. Elliott	3.00
J. C. Matthews	1.00
J. A. Everett	1.00
R. C. Clary	1.00
L. C. Elliott	1.00
Chas. Adams	2.00
O. C. Richardson	2.00
A. A. Lyons	1.00
John S. Semmens	1.00
Harry Crawford	2.00
Caroline Lindenmeir	3.00
J. E. Walcher	1.00
D. C. Polhemus	5.00
W. H. Foster	.50
M. Cantonwine	3.00
W. B. Walcher	1.00
J. M. Cornelius	1.00
John L. Miller	1.00
N. M. Steinson	1.00
J. B. McKinstry	1.00
N. L. Henthorne	3.00
C. S. B. K. A.	15.45
H. E. Whitacre	1.00
Fred Wick	1.00
J. W. Hackney	1.00
W. P. Collins	2.00
Wesley Foster	5.00
A. J. McCarty	5.00
W. C. Evans	2.00
J. C. Aikin	1.00

Expense.

Programs	$ 8.75
Phone	.20
Advertising	12.00
Music	10.00
Refreshments	13.50
Signs	8.50
Traveling expenses	6.00

Rent of table	$ 1.50
Custodian	5.50
Rent of Tramway Auditorium	20.00
	$85.95

Signed,
WESLEY FOSTER, Chairman.
N. L. HENTHORNE,
L. F. JOUNO.

Resolutions.

The National Bee-Keepers' convention, assembled in national convention in Denver, for the purpose of advancing the interests of the bee culture industry, consider it is its pleasure and duty to adopt the following resolutions:

Old Members.

We thank the old members of the National Kee-Keepers' Association for coming long distances to attend this meeting, thus bringing the memories of the past abreast the problems of the present. We thank those old members for the inspiration which we hope may always animate the N. B. K. A.

Colorado B. K. A.

Whereas, The Colorado Bee-Keepers' Association, through chair committees, have provided the National Bee-Keepers' Association delegates with all our facilities to easily and comfortably transact their business, and have made our convention a most enjoyable one, we hereby express our thanks and appreciation for their efforts.

Colorado H. P. A.

The National Bee-Keepers' Association extends its thanks to the Colorado H. P. A. for the cordial welcome and treatment of the delegates during their stay, and the splendid banquet tendered them, and many other efforts which made our stay a most pleasant and enjoyable one.

Vote of Thanks.

We vote a vote of thanks to Mr. Geo. Nichols, who has been kind enough to act as temporary Secretary for this convention.

Resolved, That the thanks of this Association be extended to Mr. Burke Vancil, Attorney, Springfield, Ill., as an appreciataion for his personal interest in the welfare of the National Bee-Keepers' Association, and in its incorporation.

Bee-Keeping in Schools.

Whereas, We with pleasure observe that several states in the last few years have recognized the bee industry as one of great future possibilities, by establishing chairs of Bee Culture in connection with their universities, providing ample and free instruction in Bee Culture, the National Bee-Keepers' convention hereby expresses its thanks to those universities and their officers for such aid and recognition. It expresses its hope at the same time, and pledges its support to an effort to have Bee Culture recognized and taught in all State universities and Agricultural schools of the country.

U. S. Census.

Whereas, The next United States census approaches, the National Bee-Keepers' convention, regretting the results of the 1910 census, whose figures do a great injustice to bee-keepers by showing up as a small diminishing industry by failing to enumerate probably more than one-half of all the bee-keepers of the United States, take the necessary steps with the proper authorities of Washington to secure a just and accurate census of the bee industry. We recommend the appointment of an active committee to take up this matter.

Fruit Spraying.

Whereas, There exists misunderstanding and friction between the fruit-growers and bee-keepers of the country regarding the spraying of fruit trees, and poisoniing the bees, the National Bee-Keepers' convention, desiring a better understanding with the fruit-growers, proposes that the proper authorities of Washington take up the matter of spraying and formulate a national plan or policy of spraying, which will be acceptable to both the fruit-growers and bee-keepers alike.

Grading Rules.

Whereas, A uniform grading of honey is necessary for the maintaining of the prices of honey, we suggest that more uniform grading rules be adopted.

Foul Brood.

Whereas, The national menace to the bee-keeper, the European and

American foul brood, is assuming threatening proportions, we think it timely to suggest that this national scourge will eventually have to be confronted with a national campaign and plan of warfare toward its eradication, whether this plan be effected by the voluntary organization of all bee inspectors of different states, or by an organized effort of the government.

Extension.

Whereas, The Extension Division of the Department of Agriculture in Washington is most anxious to spread light and knowledge of agriculture to the remotest corners of the country, has through its Extension Division accomplished great results in other branches of agriculture.

We, the National Bee-Keepers' Association, respectfully ask that a fit, energetic and capable man be appointed on the Extension Division to visit all sections of the country to advise, instruct, demonstrate and organize the bee-keepers of the United States, and work hand in hand with the various state and local organizations to bring the Bee Industry into national prominence and help it to realize its promising possibilities.

Sugar.

Whereas, With the rapidly growing industry of Bee Culture, feeding bees with sugar syrup to keep them from dying of starvation in winter has become a great problem with the infant industry of bee-keeping; and

Whereas, The price of granulated sugar has become prohibitive; and

Whereas, We recognize our Government as a helper and aid to all struggling industries, we suggest that the Government be approached with a petition to pass a law to allow the National Bee-Keepers' Association to import denatured sugar for the use of its members, free of duty.

Resolved, That next year's annual meeting of the National Bee-Keepers' Association be held in some eastern city.

FRANCIS JAGER,
Chairman of Committee.

LIST OF MEMBERS

—— OF THE ——

Illinois State Bee-Keepers' Association

FOR 1915,

and Statistical Report for 1914,

AS FAR AS SENT IN TO THE SECRETARY.

(Where no State is given "Illinois" is understood.)

NAME AND ADDRESS.	How Many Colonies?.....	Comb Honey in 1914.....	Extracted Honey in 1914.....	Is There Foul Brood In Your County?..
Ahlers, H. C., West Bend, Wis.....	325	....	25400	Yes
American Can Co., 104 S. Mich. Ave., Chicago.	....	....	....	....
Anthony, A. B., Sterling, Ill.....	70	1700	400	Yes
Arnold, F. X., Deer Plain, Ill.....	270	3000	3000	Yes
Aspinwall, L. A., Jackson, Miss.....	....	....	....	....
Augestine, A. A., R. 1, Dakota, Ill.....	....	....	....	....
Baldridge, M. M., St. Charles, Ill.....	....	....	....	....
Balduff, Henry, Beardstown, Ill.....	64	2000	....	....
Bamberger, John, Freeport, Ill.	....	....	....	....
Barkemeyer, B. D., 450 Marion St., Chicago...	....	....	....	....
Bartsch, F. R., 330 W. 69th St., Chicago.....	....	....	....	....
Baxter, Dr. A. C., 1412 Holmes Ave., Springfield, Ill.	....	....	....	....
Baxter, Emil J., Nauvoo, Ill.....	260	....	....	Yes
Beaver, Wallace R., Lincoln, Ill.....	....	....	....	....
Becker, Chas., Pleasant Plains, Ill.....	75	....	....	Yes
Beeler, J. M., R. 1, Springfield, Ill.....	....	....	....	....
Bender, Chas., Newman, Ill.....	94	580	....	Yes
Benecke, Rev. W. F., Deiterick, Ill.....	14	100	....	No
Bennett, C. S., 1022 Jackson St., Clarkston, Ill.	....	....	....	....
Bent, Jay, Milledgeville, Ill.....	....	....	....	....
Bishop, Frank, Virden, Ill.....	74	....	600	Yes
Blume, W. B., Norwood Park Sta., Chicago....	....	....	....	....
Bodenschatz, Adam, Lemont, Ill.....	....	....	....	....
Boss, H. T., 3347 52d Ave., Chicago.....	....	....	....	....
Bowen, J. W., Jacksonville, Ill.	....	....	....	....
Brelsford, W. H., Kenney, Ill.....	23	50	....	Yes
Brinckerhoff, Dr. J. J., Minooka, Ill.....	11	20	....	Yes
Broschler, Robert, 3226 Osgood St., Chicago...	....	....	....	....
Brown, A. F., Hawk's Park, Fla.....	200	....	....	No
Brobuaker, W. H., R. 3, Freeport, Ill.....	....	....	....	....
Bruner, E. H., 3836 N. 44th Ave., Chicago.....	....	....	....	....
Buchmayer, J. F., Iowa City, Iowa.....	....	....	....	....
Budlong, W. M., 1529 14th Ave., Rockford, Ill..	6	....	300	Yes
Bull, John C., Valparaiso, Ind.....	....	....	....	....
Burnett, R. A., 199 S. Water St., Chicago.....	....	....	....	....
Burrows, Chas., Lincoln, Ill.	2	....	....	Yes

NAME AND ADDRESS.	How Many Colonies?.....	Comb Honey in 1914.....	Extracted Honey in 1914.....	Is There Foul Brood In Your County?.
Carlson, P. A., 503 S. 4th St., Galva, Ill.....	16	150	300	Yes
Carrico, John G., Barnett, Ill.....	12	50	....	Yes
Cauniford, C. J., Pecatonica, Ill.....	....	....	....	....
Chase Bros. Co. Rochester, N. Y.....	....	....	....	....
Cheesman, J. A., Pesotum, Ill.....	25	330	....	....
Clark, Frank, Ridott, Ill.....	....	....	....	....
Clausen, S. S., R. 3, Oregon, Il.....	....	....	....	....
Cook, H. M., Pecatonica, Ill.....	....	....	....	....
Coppin, Aaron, Wenona, Ill.....	....	....	....	....
Dadant, H. C., Hamilton, Ill.....	....	....	....	....
Dadant L. C., Hamilton, Ill.....	....	....	....	....
Deem, B. L., Colona, Ill.....	.8	....	....	....
Desart, Frank, 1308 Ottawa St., Lincoln, Ill...	10	....	150	No
Diebold, A. J., Seneca, Ill.....	50	....	....	....
Dittmer, Fred M., Augusta, Wis.....	39	500	1000	No
Donyes, Geo. F., Durand, Ill.....	110	....	7000	Yes
Drake, R. P., Warren, Ill.....	51	1500	2000	....
Dreuth, John, Jersey, Ind.	....	....	....	....
Duby, H. S., St. Anne, Ill.....	70	....	....	Yes
Duff, Peter N., 1749 W. 58th St., Chicago.....	....	....	....	....
Engle, Tobias, Freeport, Ill.....	....	....	....	....
Fairbanks, C. A., Anamosa, Iowa.....	130	1200	....	....
Farrington, F. C., Wheaton, Ill.....	....	....	....	....
Ferguson, L. R., Harvey, Ill.....	4	90	260	Yes
Finch, C. W., 1451 Ogden Ave., Chicago.....	....	....	....	....
Fischer, Henry F., Bensenville, Ill.....	....	....	....	....
Finger, C. A., Marissa, Ill.....	19	200	300	....
Fisher, W. H., Morris, Ill.....	8	....	....	No
Floor Arthur, 3346 S. 52d St., Chicago.....	....	....	....	....
Foltz, Adam, Elpaso, Ill.....	25	....	....	No
Fosse, E. P., Marion, Ill.....	70	....	....	....
France, Hon. N. E., Platteville, Wis.....	....	....	....	....
France, L. V., 435 W. Wash. Ave., Madison, Wis.	....	....	....	....
Frey, Jake, Bolivia, Ill.	....	....	....	....
Funk, H. W., Normal, Ill.....	90	....	500	Yes
Gettler, Frank, Seneca, Ill.....	15	200	....	....
Glasser, William, Dakota, Ill.....	32	600	....	....
Glasser, W. M., Dakota, Ill.....	....	....	....	....
Grabbe, F., Libertyville, Ill.....	....	....	....	....
Gray, W. H., Chillicothe, Ill.....	....	....	....	....
Haan, Frank J., Riverview, Ill.....	....	....	....	....
Handel, Chas. D., Savana, Ill.....	....	....	....	....
Hansell, Charlie, Minooka, Ill.....	19	40	....	Yes
Hansell, Will, Minooka, Ill.....	18	....	....	Yes
Hassinger, Edw., Jr., Greenville, Wis.....	....	....	....	....
Hastings, Chas., 1625 N. Union St., Decatur, Ill.	....	....	....	....
Haubold, Jacob, Mechanicsburg, Ill.....	....	....	....	....
Haupt, Mrs. Anna, 12345 Wallace St., W. Pullman, Ill.	....	....	....	....
Hawkins, K. E., Plainfield, Ill.....	....	....	....	....
Hays, C. L., 2000 W. 101st St. Place, Chicago..	....	....	....	....

NAME AND ADDRESS.	How Many Colonies?.....	Comb Honey in 1914.....	Extracted Honey in 1914.....	Is There Foul Brood In Your County?.
Heinzel, A. O., R. 3, Lincoln, Ill.....	....	....	....	....
Hettel, Mrs. J., Marine, Ill.....	60	....	500	Yes
Hitt, Sam'l N., Elizabeth Ill.....	48	250	1500	No
Horack, Chas., Streator, Ill.....	....	....	....	....
Hoy, Joseph, R. 4, Mt. Pulaski, Ill.....	....	....	....	....
Humer, J. M., 1234 Gov. St., Springfield, Ill.....	7	....	....	....
Hyde, W. H., New Canton, Ill.....	....	....	....	....
Johnson, Jas. T., Percy, Ill.....	....	....	....	....
Kannenberg, C. F., Oak Park, Ill.....	....	....	....	....
Kelley, J. W., R. 2, Peoria, Ill.....	....	....	....	....
Kennedy, B., 2507 S. State St., Rockford, Ill...	....	....	....	....
Kerley, Josiah, Anna, Ill.....	....	25	....	....
Kildow, A. L., Putnam, Ill.....	....	....	....	....
King, Harry L., R. 10, Springfield, Ill.....	....	....	....	....
Klein, John, Mendota, Ill.....	....	....	....	....
Kluck, N. A., McConnell, Ill.....	....	....	....	....
Kneser, John, Barrington, Ill.....	....	....	....	....
Knox, C. S., Round Grove, Ill.....	23	75	600	Yes
Kroschel, Robt., 3226 Osgood St., Chilago.....	20	....	....	Yes
Kuczynski, John F., R. 4, Amboy, Ill.....	30	300	300	No
Lampman, H., & Son, Rockton, Ill.....	90	1500	500	Yes
Lange, J. W., Thawville, Ill.....	....	....	....	....
Lawrence, Geo. F., R. 1, Spring Valley, Ill.....	25	....	....	Yes
Laxton, J. G., Lyndon, Ill.....	110	....	2000	Yes
Lee, Arthur, Rockton, Ill.....	....	....	....	....
Lee, H. W., Pecatonica, Ill.....	....	....	....	....
Legat, Sylvester, Spring Valley, Ill.....	....	....	....	....
Leka, G. W., R. 61, Mechanicsburg, Ill.....	....	....	....	....
Lind, M. M., Baden, Ill.....	120	200	....	Yes
Lyman, W. C., Downers Grove, Ill.....	....	....	....	....
Marshall, Wm., Carpentersville, Ill.....	40	2000	....	....
Martin, M. M., Caledonia, Ill.....	....	....	....	....
Miller, E. S., Valparaiso, Ind.....	....	....	....	....
Moore, W. B., Altona, Ill.....	....	....	....	....
Mottaz, A., Utica, Ill.	80	100	2000	Yes
Muchleip, H., Apple River, Ill.....	65	2500	1000	....
Ness, L. L., Morris, Ill.....	175	....	....	Yes
Newburn, J. W., Wenona, Ill.....	....	....	....	....
Norberg, Arthur, Spring Valley, Ill.....	....	....	....	....
Oakes, Lannes P., Metropolis, Ill.....	57	500	200	....
Olson, John, Davis, Ill.....	....	....	....	....
Opfer, A. H., 6559 Patterson Ave., Chicago,...	....	....	....	....
Opfner, Fred, Peotone, Ill.	....	....	....	....
Pike, E. C., St. Charles, Ill.....	40	30	2100	....
Poindexter, Jas., R. 5, Bloomington, Ill.....	....	....	....	....
Price, Henry, Elizabeth, Ill.....	....	....	....	....
Rauschenberg, W., 5812 Lawrence Ave., Jefferson Sta., Chicago.	30	740	360	No
Reynolds, Alvah, Altona, Ill.....	....	....	....	....
Reynolds, W. G., 4340 Ogden Ave., Chicago...	....	....	....	....
Robbins, Daniel E., Payson, Ill.....	....	....	....	....

NAME AND ADDRESS.	How Many Colonies?.....	Comb Honey in 1914.....	Extracted Honey in 1914.....	Is There Foul Brood In Your County?.
Robertson, J. S., 5324 Ferdinand St., Austin Sta., Chicago.	4	300	25	No
Roehrs, R., Hinsdale, Ill.....	....	....	....	....
Rogers, H. D., Lewistown, Ill.....	18	....	....	....
Ross, R. B., Jr., 317 Metcalf Ave., Westmount, Que., Can.	....	....	....	....
Russo, Gottleib, 3029 N. Leavitt, Chicago.....	....	....	....	....
Sauer, Geo. L., Polo, Ill.....	58	150	2000	Yes
Schmertman, Louis, R. 1, Freeport, Ill.....	....	....	....	....
Seastream, Geo., Box 142, Pawnee, Ill.....	....	....	....	....
Secor, W. G., Greenfield, Ill.....	48	....	....	....
Seibold, Jacob, Homer, Ill.....	28	200	....	Yes
Seybold, C. W., Horace, Ill.....	....	....	....	....
Shawver, Oscar, Casey, Ill.....	22	....	....	....
Simmons, J. R., Harvey, Ill.....	47	....	....	Yes
Smith, Wm. S., Polo, Ill.....	....	....	....	....
Snell, F. A., Milledgeville, Ill.....	80	100	1500	No
Stumm, W. H., Edinburg, Ill.....	12	200	70	Yes
Sylvester, L., Aurora, Ill.....	....	....	....	....
Tentemacher, H., Dyer, Ind.....	....	....	....	....
Tiedge, E., 2842 N. Sawyer Ave., Chicago.....	....	....	....	....
Turner, W. P., Peoria Heights, Ill.....	....	....	....	....
Valerins, Chas., Elkville, Ill.....	62	1500	....	Yes
Vanbutsele, Louis, Collinsville, Ill.....	....	....	....	....
Van De Wiel, Anton, E. Dubuque, Ill.....	8	....	500	....
Vogel, Henry, Galena, Ill.	70	200	....	No
Wachter, Martin, Hinsdale, Ill.....	25	....	....	No
Werner, Louis, Edwardsville, Ill.....	....	....	....	....
Wheeler, J. C., 91 Austin Blvd., Oak Park, Ill...	....	....	....	....
Whitmore, H., Momence, Ill.....	20	75	50	Yes
Wiegand, Adam, 1575 Clyborn Ave., Chicago.	....	....	....	....
Withrow, G. M., Mechanicsburg, Ill.....	40	....	....	Yes
Wolfe, Austin D., Parkville, Mo.....	....	....	....	....
Woodman, A. G., Grand Rapids, Mich.....	....	....	....	....
Wuretig, C. J., 118 Vt. St., Blue Island, Ill.....	....	....	....	....
Youla, Chas., Scales Mound, Ill.....	....	....	....	....

Received April 20th, after Report was in print: Thomas Craven, Seneca, Illinois.

Following is a list of the Libraries which have asked to be placed on our mailing list for our reports each year:

New York, State Library.
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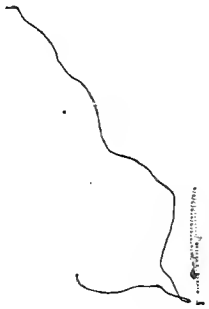
Washington, D. C., Library.
U. S. Dept. of Agriculture, Library.
John Crerar Library.
Maryland State Ent. Library.
Illinois State Library.
Illinois State Historical Library.
State Normal University Library.
Massachusetts Agricultural College, Library.
Indiana Agricultural Experiment Station, Library.
Washington, D. C., Library of Congress.
Seattle Public Library.
Philadelphia Free Library
Washington, D. C., Bureau of Entomology.
California University, Library.
Besides this we have calls from Inspectors of other states.



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